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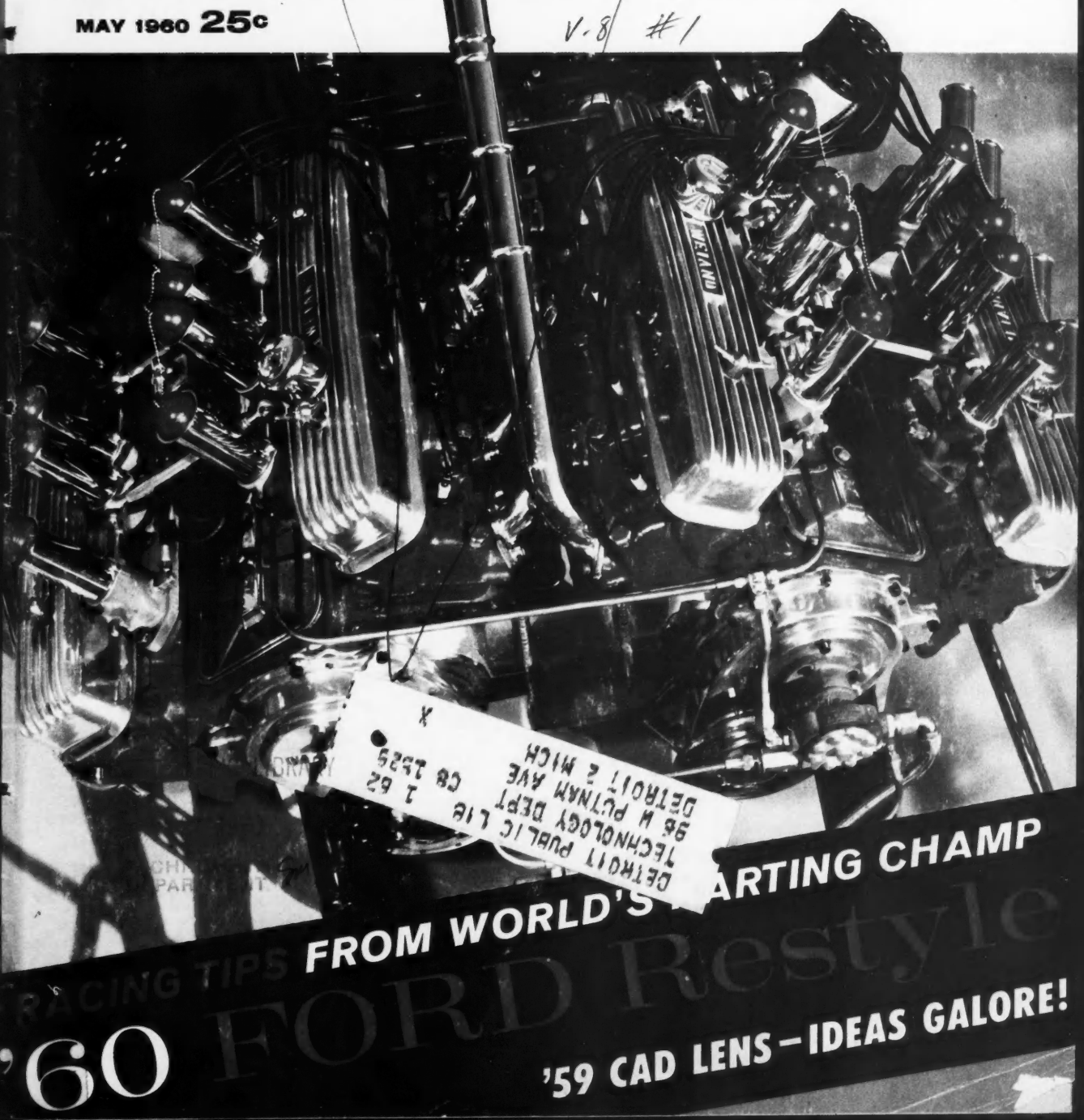

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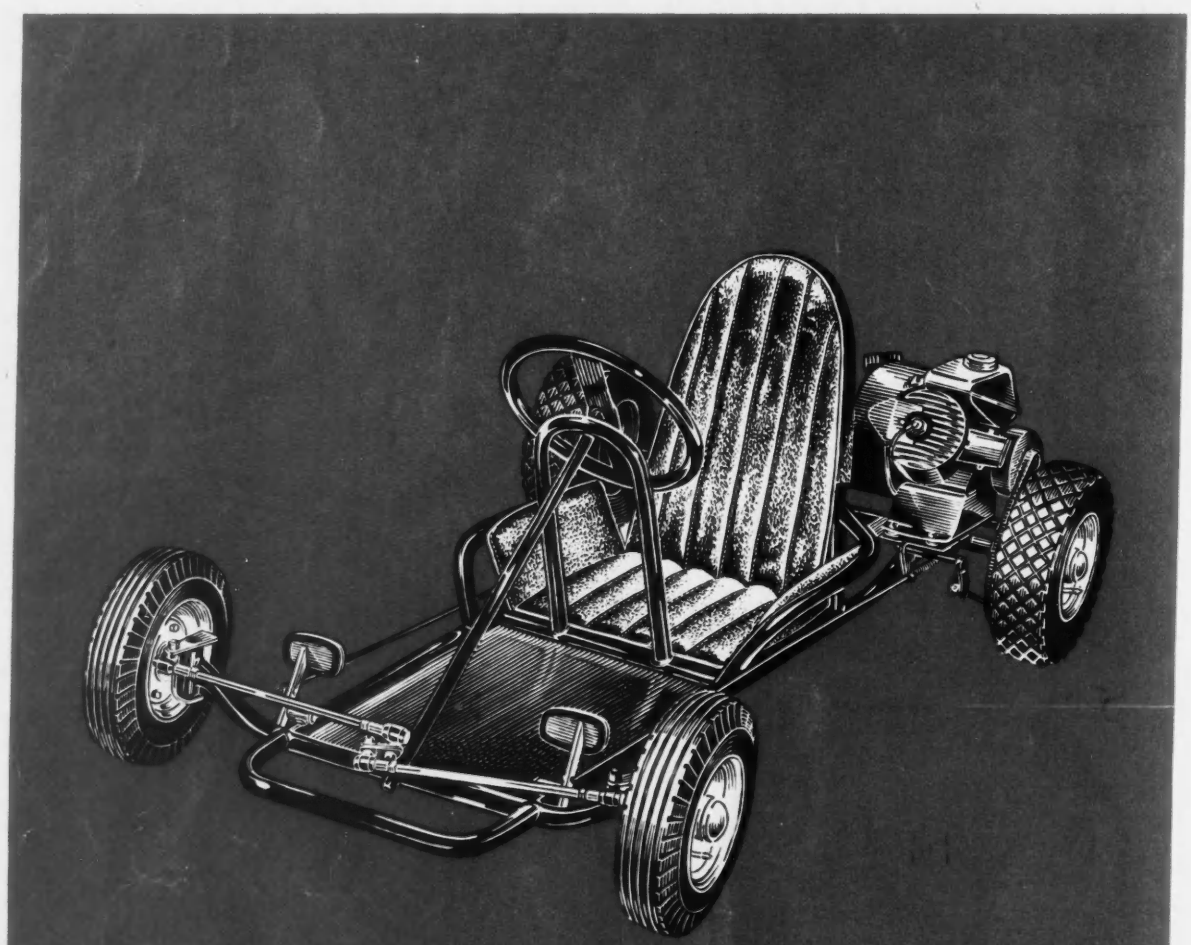

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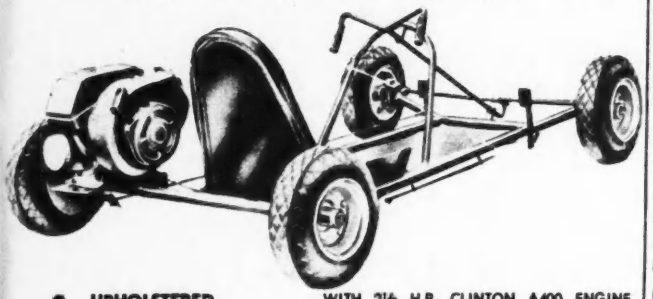

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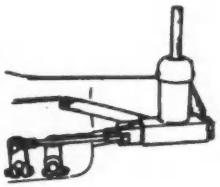

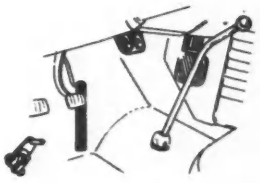

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cover

A quick glance at this month's cover and you may think you're seeing double. Don't worry, it's just the twin Buick powerplants in Tommy Ivo's record-breaking dragster. For story on dual engine dragsters — see page 14. *— Anscochrome by Bob D'Olivo.*

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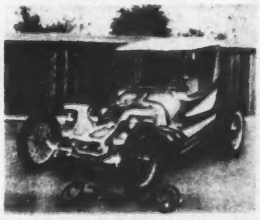

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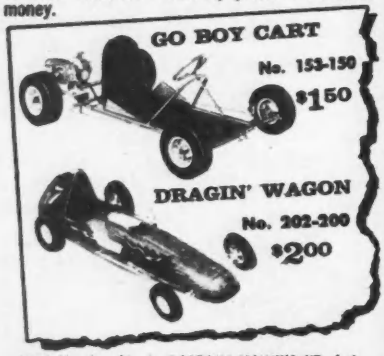

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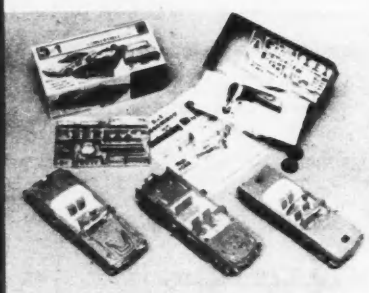

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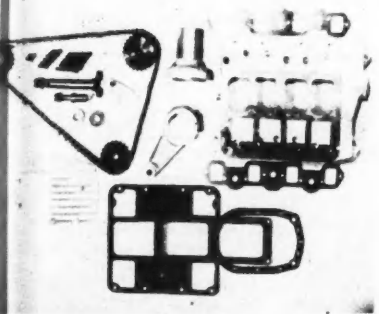

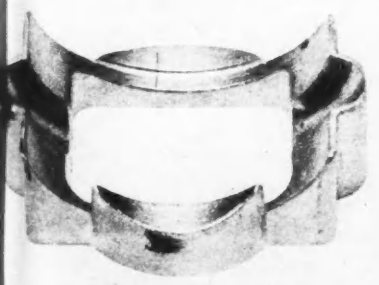

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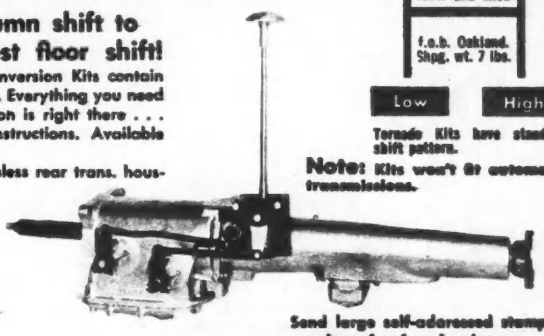

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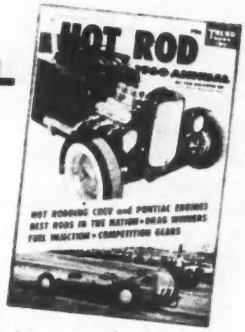

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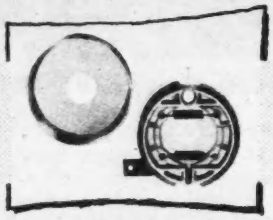

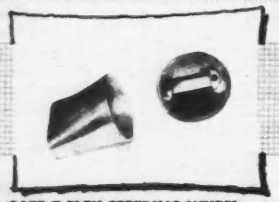

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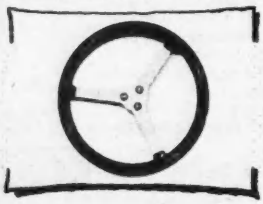

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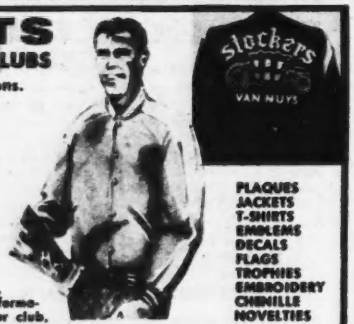

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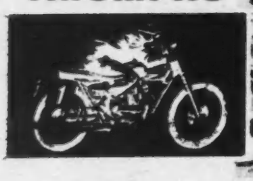

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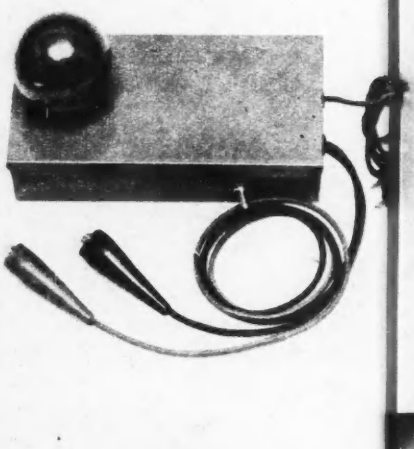
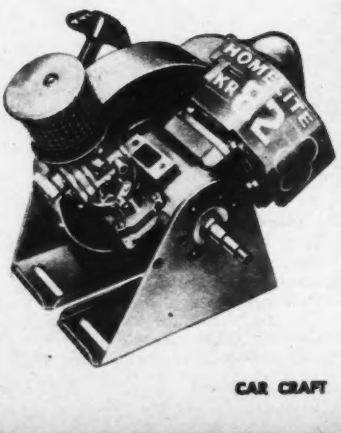


NO-NAME COVERS

New rocker arm covers for 348-inch Chevrolet engines are finned, highly polished aluminum, void of name. Reduction of valve gear noise is also featured. Price per pair: $49.50. Write: Moon Equipment Company, Dept.-cc, 10920 S. Norwalk Blvd., Santa Fe Springs 20, California.

STRAIGHT-LINE SHIFT

Column shift convertor eliminates H-shift pattern; new speed shift is straight. Claimed to reduce elapsed time between shifts. Fits all except automatics and '32-'48 Ford trans. $34.05. California Equipment Co., Dept.-cc, P. O. Box 8036, Northgate Station, Seattle 55, Washington.

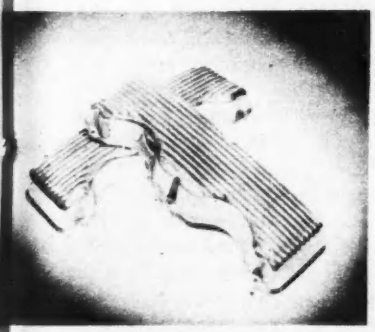


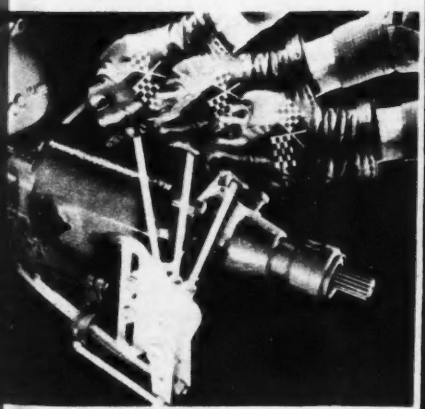
KART & BIKE PLANS

Scale plans include material cost, exploded views, photos, measurements. Two plans: Min-A-Bike is for small kart cycle; Economy Kart features low-cost kart. Price: M-A-B: $3.00; E.K.: $2.00. Delta Design, Dept-cc, Box 41001, Los Angeles 41, California.

TRICKLE CHARGER

Ideal for quarter midgets and other small cars that use ½ amp wet cell batteries. Included are clamps, cord, and charger. Bulb is extra. Price: $9.95, ppd. Write: Genie Trickle Charger, Department-cc P. O. Box 485, Norwalk, California for info.





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Homelite K-82 mill is in Class A category. Fast and light, the engine comes with mounting brackets and is available in left or right-hand drive set-up. Write for information. Price: $98.75 FOB factory. Homelite Engines, Dept.-cc, Port Chester, N. Y.

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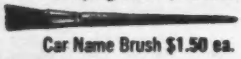

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of the editor

BY NOW EVERY KARTING enthusiast has heard of Jim Yamane—the world's first international karting champ, yet few actually know much about him. We here at CAR CRAFT have had several occasions to witness him in action on kart courses here in Southern California and, from our first introduction, recognized his talents while at the helm of his super-tuned miniature speedster. Jim made the record books when he won GKCA's first national class 'A' championship. Shortly following this he again was back in the headlines capturing Formula K's initial 'B' title. Then to really cap off the '59 racing season in a grand manner, he turned in two astounding victories at the recent Nassau karting grand prix by not only winning his 'B' class event but the world championship title as well. It was only a matter of time and perfectly natural that rumors and pure bewilderment commenced to flow from karting enthusiasts everywhere. To sit through a bench racing session today and listen to a group of karters discuss the theory behind Jim's flawless competition record you would almost be led to imagine that this young karting king not only possesses a sixth sense for race driving but also has mastered all the sport's speed secrets. Some say his equipment is highly engineered and far superior to most. To this others add that his engines are factory bench-jobs offering far more performance than standard models. To all of this please allow me to refer you to page forty-two. There you will find Yamane's own answers to his very successful kart racing career as told to associate editor, Bud Lang, above. Kart owners, especially those competition minded, will find the Yamane story very enlightening I guarantee. His basic approach to car construction, tuning and driving technique are nothing more than pure karting.

* * *

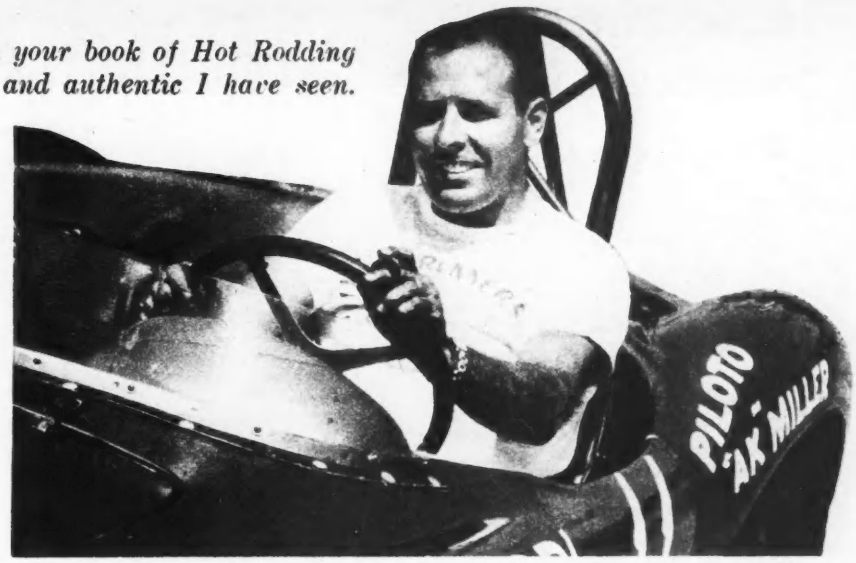
If I forgot to mention it you're all in for a really big sho-o-ow next month in the June issue of CAR CRAFT. It promises to be one of the top issues of the year—and for you roadster fans truly a collector's item. 'Return of the Roadsters' will set the theme with a photo spread to end all automotive pictorial sections. It's not that we have been holding out these past few months, but we must confess to stashing one or two jewels from time to time, saving them for next month's big blast. Accompanying this will be a complete report on drag racing's latest offering of over-the-counter dragster chassis and components by technical editor, Don Francisco. No longer is it necessary to trip down to the local metal supply house to purchase that chrome-moly tubing, not when you can order one of four or five race-proven designed chassis now being introduced by these drag specialty manufacturers and the accessory parts to go with them. Karting will again have a corner in the June issue with a special report on brakes for competition. The type that function for an entire race, not those that last only for three quick laps. My suggestion to you is to look for a lot of roadsters on your newsstand next month—we'll take it from there.

—Dick Day

"The material you have in your book of Hot Rodding is the most complete and authentic I have seen.

Anyone interested in Hot Rodding should have these facts in this great book at their side."

—AK MILLER



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YOUR ENGINE'S ELECTRICAL SYSTEM—High-performance ignition, mags, distributors, coils, condensers, spark plugs, batteries, generators.
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ENGINE SWAPPING FOR MORE POWER—Given here are methods of installing bigger engines that will save you time and money.
CHOOSING THE RIGHT TRANSMISSION—Discusses transmissions for the various types of cars used by hot rodders for all types of driving.
BUILDING YOUR OWN HOT ROD—Choosing the basic car. Chassis, body, suspension modifications. Building for street or competition, or both.
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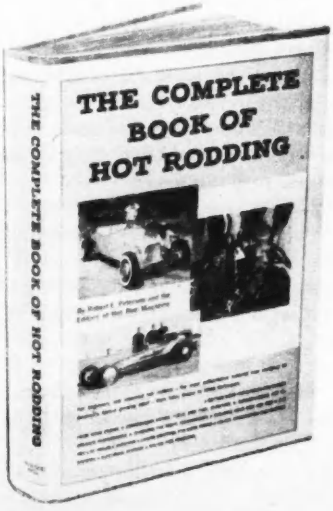

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LETTERS

"FULL HOUSE MOUSE"

Dear Sir:

Thought you might like this picture of our Fox Go Boy Cart. We are

distributors for these carts and fixed this up for a display.

Sure gets a lot of attention.

— Bert Steiner
Pontiac, Michigan

We bet it does! The only trouble: it's unbelievable on straightaways, but just a little top heavy on those corners. Drag anyone? — Ed.

"YOU GOOFED"

Dear Sir:

I just received my March copy of CAR CRAFT and while looking through it came across the article "One Chev—Well Done". You show three pictures in which the steering wheel can be seen. In two of these pictures (on the tops of pages 32 and 33) the steering wheel is on the drivers side, but the bottom picture on page 32 shows it on the passenger's side. Please explain this to me.

I think CAR CRAFT is tops in its field.

— Ted Wells
Sedalin, Mo.

Well, you know how these English cars are don't you? Seriously though, this is a mistake that should not have happened, but it did. For an attractive lay-out or picture positioning, we needed a photo that lead-in from the page. Too technical to explain, but photos can be "flopped" as we call it. If you have a snapshot around, hold it up to a light and look at it from behind. Then look at the photo correctly. Notice the difference in angle and positioning? Actually, the photo is printed backwards in the magazine. If there are no license plates or steering wheels to slip us up, we're home free. Otherwise . . . To save face slightly, we did catch this error during the last stage of production that put the issue together, but it was too late to make such a drastic (new photo, captions, etc.) change so we had no choice but to let it go to press, as it was. This is just one of the problems we meet in producing CAR CRAFT. We apologize for the error and we compliment reader Wells for being on his toes. — Ed.

CUSTOM MODEL SHOPPE

Dear Sir:

I am very interested in model customizing and would like to get in touch with others who are also model customizers. I have built about 15 customs and I plan many more.

If there is anyone who would like me to customize a model for them, please write and I will discuss it with you via letters. I suppose this is probably the very first custom model shop, huh?

— Bill Reynolds
314 Jefferson Ave.
Clifton Forge, Va.

Yup. — Ed.

"WHEN WILL THEY STOP?"

Dear Sir:

I'm with a couple of your other readers about your failure to continue having a "Coming Attraction Girl". I have always looked forward to that.

Your magazine is great however, and even better in its new size. Keep the 25¢ price please.

— Graig Wallace
Camarillo, Calif.

A COUPLE of others?!! — Ed.

CARTING CONTROVERSY

Dear Sir:

I sincerely like your magazine provided it lives up to its name. By this I mean go-karts do not belong in Car Craft. I agree with the majority of customizers that go-karts should have their own magazine.

I am looking forward to the next six issues of your magazine and I hope the pages will be worth looking at. Please keep the go-karts at a minimum if you *must* display these "bugs" in your mag.

I know that a magazine must rely on its advertisements, but it must also sell itself. I believe you will get more subscriptions if the go-karts are kept at a minimum and the readers are given what they want — simply hot rods and custom cars.

Your magazine is twice as big now, let's try for twice as much business in the future.

— PFC Phillip M. Salzmann
San Francisco, Calif.

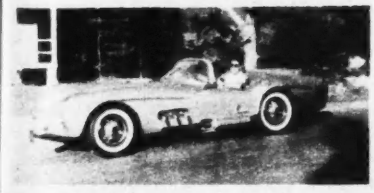
There are pros and cons on this subject that won't quit. We don't desire to discuss both sides of this subject as it only leads to wasted space for some people. We are of the opinion that karting is perhaps one of the best things that EVER happened to an avid automotive enthusiast. So many factors support this opinion. First, they were originally designed as an inexpensive automotive sport. Sure, $500 is pretty expensive for such a small car as a full-house 'B' racing kart, but compare that to $5000 for the average dragster or Bonneville machine. There's quite a difference. You can build both for less than the listed prices above, but you'll approach these respective figures if you want the BEST. The karts provide a definite challenge to the driver. It makes no difference if you're going 40 or 400 mph there are challenges facing you all of the way. This is thrilling. We also feel that tomorrow's top competition drivers are being developed in kart racing today. We've personally talked to several professional midget, sprint, big car, Indy and sports car racing drivers who have said time and again that a hot kart is more challenging, thrilling, demanding, forgiving and downright fun than anything they had driven before.

We won't go overboard in our presentation of karts because we feel that they are an important part in the automotive field, but there are also other important fields to explore — hot rods, customs, etc. We desire an equal representation. CAR CRAFT is a magazine on *cars*, be they customized, hopped, stock, skeleton frame, monstrous in size or lilliput. If it is an interesting machine, be assured that we'll feature it regardless of its type or name. And we intend to remain that way!

A FAMILY AFFAIR

Dear Sir:

Enclosed you will find a picture of our sportscar which I built with the aid of my father, Raymond Cacioffe. The body is constructed of fiberglass of our own design. We made a plaster mold and applied



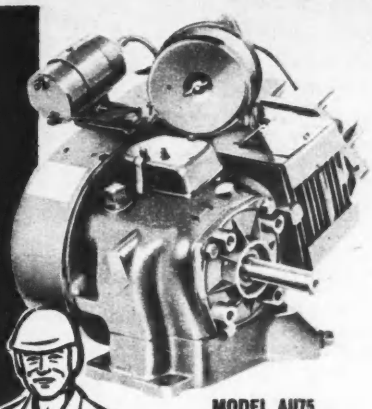
approximately seven to ten laminations of fiberglass. The body is mounted on a Henry J. chassis, while the powerplant is a Corvette '8' which transmits the power to the road via a 4:11 rear end.

The other components are too numerous to mention. Besides, we've forgotten many of the parts because the car took nearly two years to finish. (Incidentally, that's my father in the photo.)

— Raymond Cacioffe, Jr., West Orange, N.J.

It seems that practically every car that passes over our desk that was a joint project between father and son has been an exceptional automobile. Your fiberglass sports car is no exception to this rule. It appears to be a very well designed roadster. We're glad you let us see it.— Ed.

THERE'S LASTING "GO" IN THE GO-CART WITH CONTINENTAL 4-CYCLE POWER



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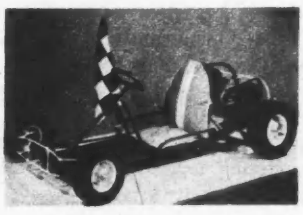

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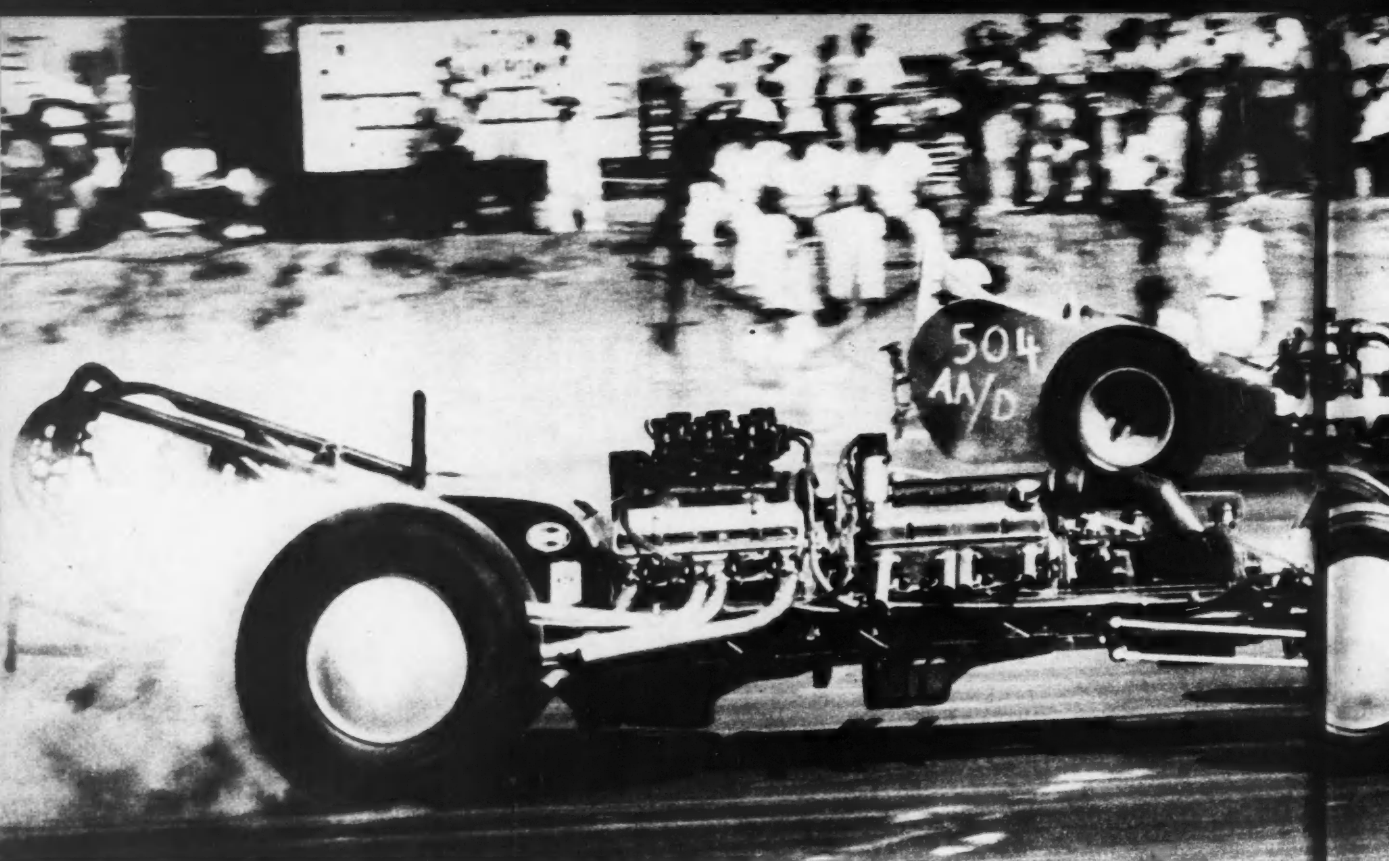


DUAL ENGINE

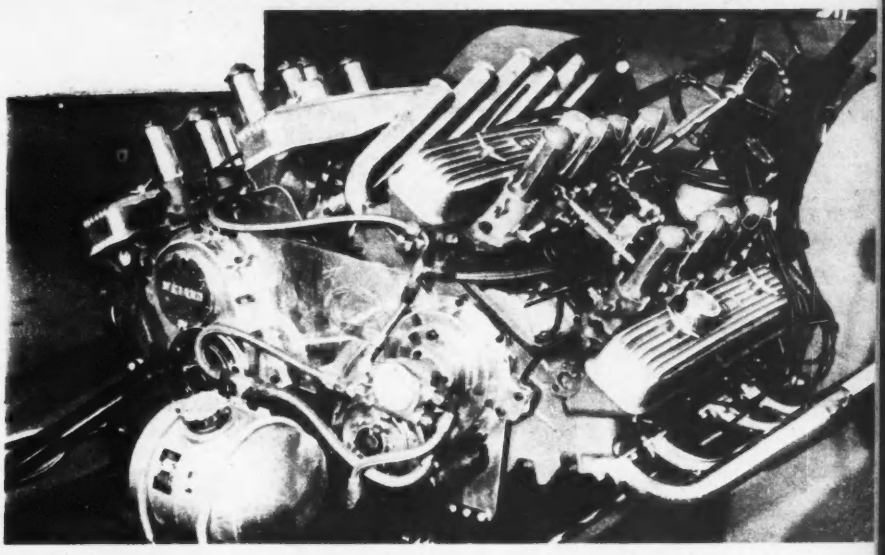
Rodders set their sights on the two-hundred mark in quarter mile with theory that if you want to go fast—

REMEMBER WHEN "There's no substitute for cubic inches" meant a boost of 40 to 60 inches in the displacement of a hot rod's engine? Now, at least as far as dragsters are concerned, it can mean another three or four hundred inches.

There is only one logical way to add three or four hundred cubic inches of engine displacement to a car and that is by adding a second engine. This isn't by any means a new idea, nor does it threaten to become a standard practice in the immediate future, but it is a practice that is growing steadily in popularity among dragster owners. And it has much in its favor.

A car built by Bill Kenz, of Denver, Colorado, was probably the first twin-engined hot rod. It was the forerunner of Kenz's multi-engined streamliner that held the Bonneville National Speed Trials Unlimited Class speed record for several years. Bill built his twin-engined car in 1944 around a pair of lengthened Model A frame rails. It had two '41 flathead Ford V8 engines that gave it a combined horsepower of 170, a real handful at the time. Just to be different, Bill fitted the car with a Model A Ford pickup cab instead of a roadster body. One engine was in the normal location in the frame and the other was behind the cab. The front engine drove through the rear engine but its driveline could be disengaged so that the car could be driven by the rear engine only. Performance of the car, which was years ahead of its time, was 0 to 100 miles per hour in 15 seconds, on both engines, and a top speed of 125 mph.

Most of today's hot rodders remember the "Bustle Bomb". This was a twin-engined dragster—probably the first of its kind and undoubtedly the inspiration for the current crop of twin-engined cars—that was built by two fellows named Lloyd Scott and Noel Timmney, of Paramount, California. Work on the Bustle Bomb was begun in 1953. It also had front and rear mounted engines but it differed from the Kenz car in that the rear engine was behind the rear axle assembly and reversed in the frame. A special rear axle centersection permitted both engines to drive the same ring gear. The front engine was a 348 cubic inch Olds 88 and the pusher was a 391-inch Cadillac. In the latter part of 1955 the Bustle Bomb was the kingpin at Southern California drag strips. It had turned an unofficial speed of 147.05 mph and a 10-second e.t. Percentage-wise, drag racing speeds and e.t.'s have



Dual-engined dragsters aren't necessarily "twin-engined" dragsters. The hybrid at left storming out of the chute at the '59 National Drags at Detroit proves this. This car, owned by Bill Tibboles, of Bellvue, Ohio, takes advantage of both dual-engine and blown engine advantages by having an unblown Olds and a GMC-blown Chevy twisting its driveshaft. The nearly identical twin Buick's above are the chromed and buffed muscles for Tommy Ivo's new rubber melter.

DYNAMOS

By Don Francisco

add an engine!

advanced approximately 10 points since that time. Speeds in the mid-160's are common now for the better gas burners and e.t.'s are down to as low as 9 seconds.

A dragster is a strange type of vehicle. It's a skinny-Minnie sort of car with two big wheels to do the pushing, two little wheels up front, and the handlin' man way out back. It's built to go like mad and for nothing else.

Most fellows who build dragsters start with a conventional single-engined car. After they get the bugs out of it and its speed and e.t.'s reach their peaks, they get antsy to go even faster and quicker. This means that a change must be made in the car's power-producing section. Normally this involves either a switch from gasoline to hotter fuels or the installation of a blower of some kind. For strips where special fuels are outlawed, the move is to a blower. Most of the fellows who now own twin-engined dragsters went the blower route but, for one reason or another, they weren't particularly happy with the results. In an effort to find the answer to their problems, they built cars that have two unblown engines instead of a single one with a blower.

Advantages two unblown engines provide over a single blown one that could possibly provide equivalent performance are many. The most important and desirable of these as far as the owners of present twin-engined dragsters are concerned is the dependability they have experienced from the engines. This is simply the result of doing a job with two comparatively lightly stressed engines instead of with only one that is highly stressed.

The fatality rate among blown and fuel-burning dragster engines is discouragingly high. A single engine is usually working under full throttle from one end of the strip to the other, but, at the present time at least, drivers of dual-engined cars can use full throttle for only a fraction of the distance. Instead of shoving a rod or piston through the block every few runs, the two engines stay below the disaster point and run on and on. After the initial cost of the car, which is the chicken feed part of conventional dragster ownership when compared to maintenance expenses, is out of the way, the owner of a twin-engined dragster needs to dip into his monetary reserves only lightly and infrequently while the single-engined cars against which he is running are keeping their owners broke.

CONTINUED

DUAL ENGINE DYNAMOS

With the cost of blower equipment and the additional internal work, such as connecting rod reinforcing, that should be done in a blown engine to help it stay together, as high as it is, the first cost of a twin-engined car shouldn't be much, if any, more than that for a blown single-engined car. Good used overhead valve V8 engines can be picked up for a fairly decent price now and many of them don't require too many modifications to make them entirely satisfactory for unblown twin-engine installations.

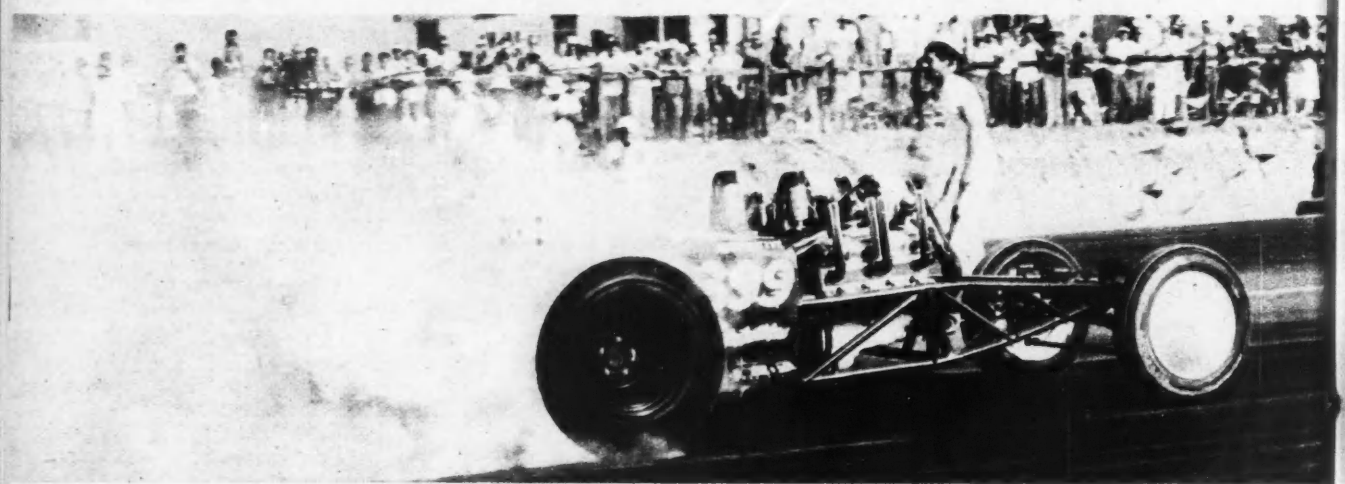
When building a twin-engined dragster it is usually advisable to make a new frame that will accommodate the engines in the desired mounting positions and that will be strong enough to carry the weight and torque outputs of the engines rather than to try to rebuild a single-engine frame. The coupling used to connect the engines shouldn't be too expensive and conventional clutch and other driveline parts can be used. If the engines are mounted side by side, rather than in line, special rear axle housings and axles are required because the axle assembly's pinion shaft must be offset one way or the other from the assembly's center.

There seems to be exceptions to any condition and the one that applies to twin-engined dragsters and their dependability is the twin-engined car that has blown engines. This is the product of the man who isn't concerned with dependability but who wants to go as fast as he possibly can on gasoline. However, the things other than horsepower that limit a dragster's performance prevent the driver of such a car from using the full potential of his engines. This gives them a better chance of surviving than if they were used singly.

In addition to dependability, a twin-engined car has a performance potential that far exceeds that of a single-engined car, either blown or unblown. The reason for this is the terrifically high combined torque output of the two engines at low as well as high car and engine speeds in comparison to that of a single engine. Although a blower boosts an engine's torque and power outputs at high crankshaft speeds, it has little effect on them at low speeds, where extra torque can usually be used to advantage to get a car out of the chute a little quicker.

But all is not roses with the torque situation in a twin-engined dragster. The driver of such a car who tries to use all the torque he controls with his right foot is immediately in trouble, simply because the car does not have a firm enough grip on the strip to convert the torque to forward movement of the car. This is the same old dragster problem of not enough drive wheel traction. Lack of traction is the main source of trouble for the driver of a twin-engined dragster.

Because the rear wheels of a twin-engined dragster break loose from the strip so readily when the combined might of the engines is transmitted to them, the driver must learn how to drive the car. Most drivers of such cars find that they must feather the throttle to get out of the chute with minimum excessive wheelspin and then, if all goes well, they can open the throttle fully at about the

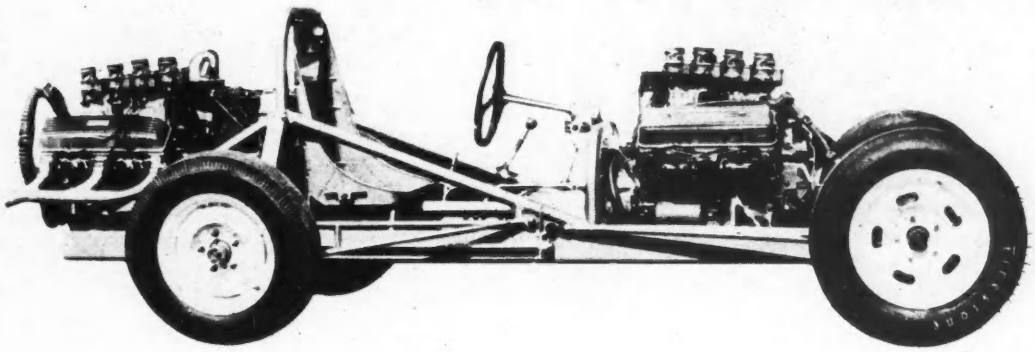


Torque from the side-by-side twin McCulloch-blown Chevy's in the Moss Automotive dragster from Texas shows the inadequacy of present traction standards.

***ABOVE** • Like circus elephants marching trunk to tail, twin Chevy's in Lefty Mudersbach's dual-engined dragster exert a massive propelling pressure.*

***RIGHT** • Lefty was even happier than he looks here when his car, now fitted with Algon fuel injectors, blasted LADS strip with a 166.66 speed, 9.09 e.t.*

Considered something of an odd-ball in its day, the Bustle Bomb was really a look into the future. With a fully reworked Olds pulling and an equally reworked Cadillac pushing, the bustle Bomb, at the height of its career, gave owners of more conventional dragsters of its day a good excuse to stay home.



Photos by D'Olivo, Broiller, Creitz, Scott

halfway point between the start and finish lines. But regardless of how the cars are driven, all throttle actions must be made slowly and gently. Any abrupt opening movement can cause the tires to break loose and stay loose. Another thing the drivers report is that once the tires have broken loose, it is much more difficult to regain traction with them than it is with a single-engined car. The reason for this seems to be that the torque flow is so great and so smooth that it is difficult to control the accelerator pedal precisely enough to obtain the desired control. Drivers find that top speeds and e.t.'s that become better from run to run are the result of continually improving driving skill on their part, which enables them to use more of the car's potential, and not the ability of the car to go faster and quicker.

Many dragster builders are opposed to using twin engines because of the weight such installations add to a car. However, fellows who have gone the route claim that the extra weight isn't as detrimental as it is commonly thought to be; in fact, some of them say it improves a car by helping to hold the front wheels on the strip and by placing additional weight on the rear wheels, which should improve traction. Simple mathematics show that a car's weight to horsepower ratio cannot help but be improved by adding another engine similar to the one

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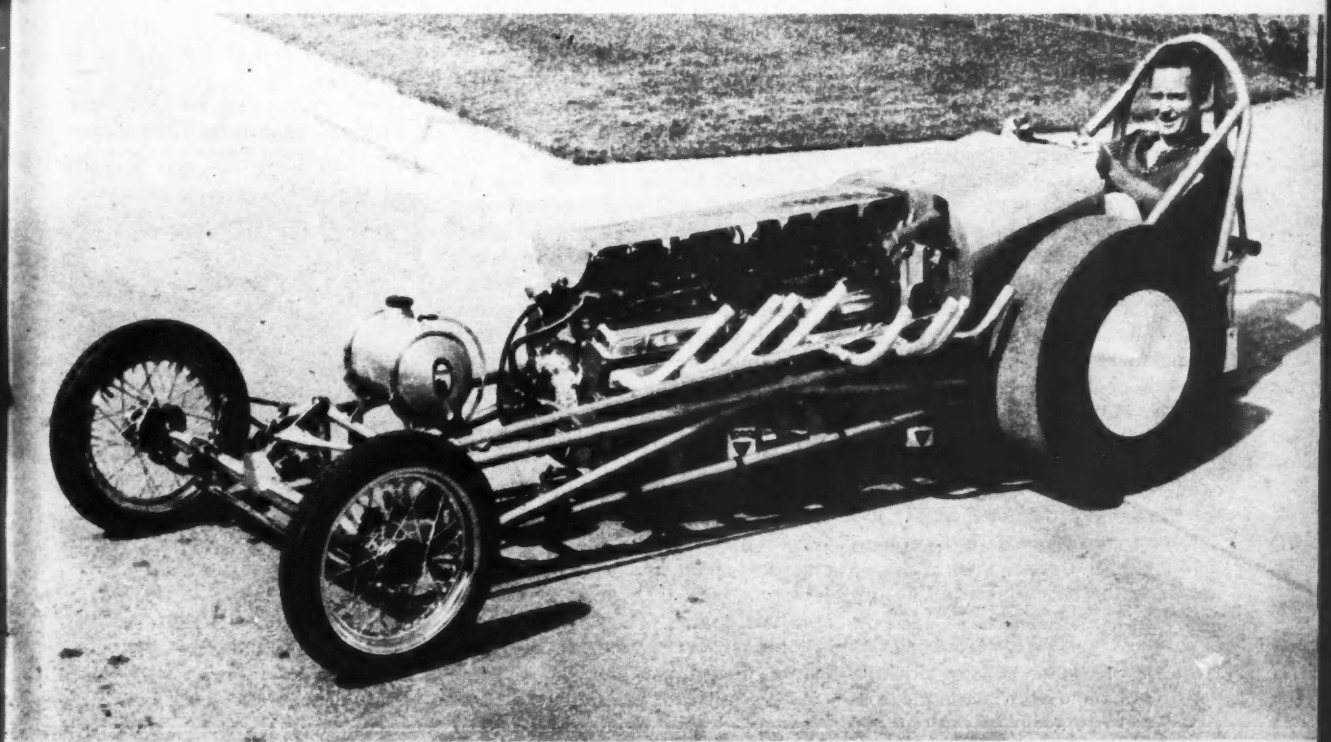
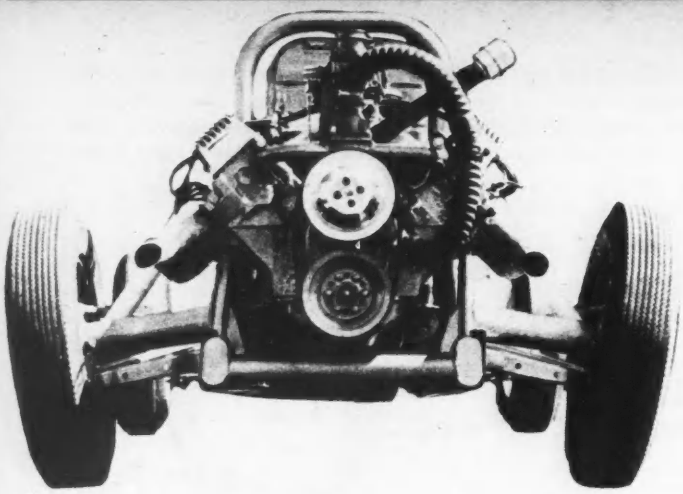




DUAL ENGINE DYNAMOS

Rear view of the Bustle Bomb gives an idea of its excellent, though heavy by present standards, construction and swing-axle rear end assembly. At one time there was much interest in unconventional suspension systems of this and other types for drag racing but now the rigid unit is king.

already in the car. But from the other end of the stick comes the problem presented by weight, as just weight. Any weight, no matter how light or heavy it may be, possesses a certain amount of inertia that must be overcome if the weight is to be started moving. Then, the inertia of the moving weight must be overcome before the weight can be brought to a stop again.

The main problems faced by the designer of a twin-engined dragster is the placement of the engines and the method of delivering their torque output to the car's driveshaft. To date these problems have been solved in a number of different ways, all apparently successful.

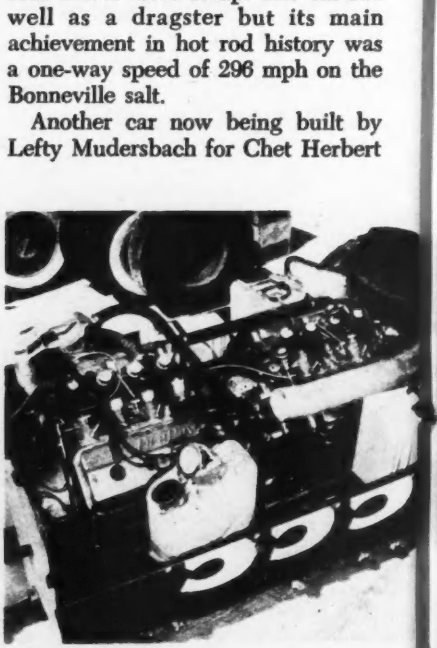
Lefty Mudersbach, in his twin Chevy-engined dragster, used the method that would seem to be the simplest and most logical for connecting two engines together. He placed one ahead of the other and then connected the rear end of the front engine's crankshaft to the front end of the rear engine's shaft. His reason for mounting the engines in this manner is that he believes the arrangement provides the best distribution of their weight on the car's wheels. However, connecting the crankshafts wasn't as simple as it might have sounded. This was because of the inherent weakness of the front end of Chevy shafts. Lefty has long since solved the problems involved with the coupling and is no longer bothered by trouble at this point.

Howard Johansen mounted his twin blown Chevys side by side and connected them with a unique coupling consisting of two aluminum flywheels fitted with standard Chevrolet starter gears. The engine in the left side of the frame is in its normal position and the clutch that drives the car's driveshaft is mounted on its flywheel. The front end of the crankshaft of the other engine was fitted with an adaptor to which a flywheel could be bolted and then the engine was mounted in the frame in a reversed position so that what was normally its rear end is now closest to the front of the car. The starter gear teeth on its flywheel were meshed with the teeth on the right engine's wheel. Connecting the engines in this manner is what made it necessary to reverse the right engine in the frame. The direction its crankshaft rotated had to be opposite that of the shaft in the left engine. Howard was one of the first to use flywheel starter gears to transmit engine torque. He was told by several engineers and many skeptics that it wouldn't work but in actual practice the coupling is completely troublefree.

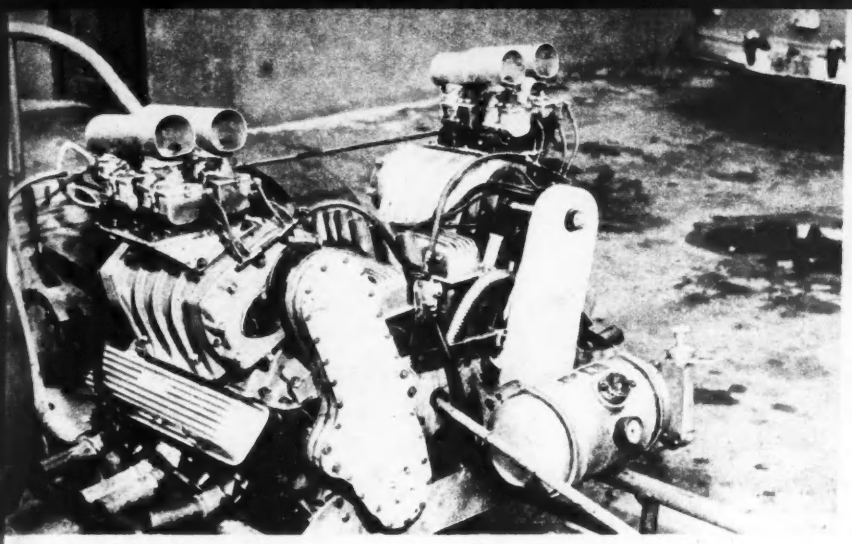
Twin Buick engines in Tommy Ivo's newest dragster are side by side and connected by their flywheel starter gears. The clutch assembly is mounted on the left engine's flywheel. Tommy's installation differs from that in Howard's car in that the right engine is mounted in the frame in its normal position. This made it necessary to reverse the direction of rotation of its crankshaft so that the rotation would be opposite that of the left engine. The only thing this required was a special camshaft. Gears on the camshaft and magneto drive shaft were designed so that the magneto and oil pump rotate in their normal direction. Tommy's words regarding the flywheel starter gear coupling are but an echo of Howard's: No trouble.

When Mickey Thompson built the twin-Chrysler engined dragster that he later drove so successfully at Bonneville he tried to improve the car's traction as well as its torque and horsepower potentials. He did this by installing one engine in a normal position to drive the rear wheels and the other in a reversed position so that it could drive a live front axle. The result was a twin-engined, four-wheel drive setup. The car ran well as a dragster but its main achievement in hot rod history was a one-way speed of 296 mph on the Bonneville salt.

Another car now being built by Lefty Mudersbach for Chet Herbert



Dual Chrysler's in Mickey Thompson's four-wheel drive dragster that ended up as a Bonneville record holder were installed nose-to-nose in car's frame.



LEFT • Howard Johanson is a hot rodder who never does anything halfway. Both the engines for his dual-engined dragster are GMC-blown Chevy's that give the car a good solid, steady push.

BELOW, LEFT • The chassis Howard built for his car was exceptionally light in weight. It didn't seem as though it would have adequate strength for the weight of the car's engines, but it did.

BELOW, RIGHT • Howard was the first of record to use flywheel starter gears as a coupling for dual engines. This setup is simplicity itself, and it proved to be a completely dependable set-up.

combines the stretched-out weight distribution Lefty likes along with the improved traction of four-wheel drive. However, this car is lifted out of the twin-engine class by the installation of a third engine. All three engines will be 400 horsepower Chevy V8's and the third one will be ahead of the two that will drive the rear wheels. It will be reversed in the frame and will drive the front wheels.

Lefty's theories regarding the new car are sound. Although its weight will be increased the amount equal to the total of the weight of the third engine, the weight of the live front axle assembly over that of a standard axle, and the amount of the additional frame material required, most of the weight will be on the front wheels where it can be used for driving traction. The additional power output of the third engine will more than compensate for the added weight, thereby effecting an appreciable reduction in the car's weight to horsepower ratio.

When drag racers first began experimenting with twin-engined cars there were all sorts of theories to be heard about how the crankshafts of the engines should be synchronized so that the engines could deliver maximum horsepower to a car's driveshaft. One theory was that the shafts should be synchronized so that the driveshaft would receive a power impulse every 45 degrees of rotation, as it would if it were driven by a 16-cylinder engine. Another was that the synchronization should be such that the driveshaft would receive a power impulse every 90 degrees, which meant that cylinders in the engines would fire simultaneously. One group of theorizers said, "Forget about synchronization. Just hook 'em together."

Howard Johansen ended the controversy when he was dyno testing his engines and their flywheel-gear coupling. He checked the combined horsepower output of the engines while they were synchronized to fire alternately and together and also after they had been coupled out of synchronization. He found that the power output was the same, no matter how the engines were coupled. Now, when he bolts the engines together, he lets the teeth on their flywheels mesh in any position in which they may happen to be. Tommy Ivo doesn't worry about synchronization but Lefty Mudersbach does, simply

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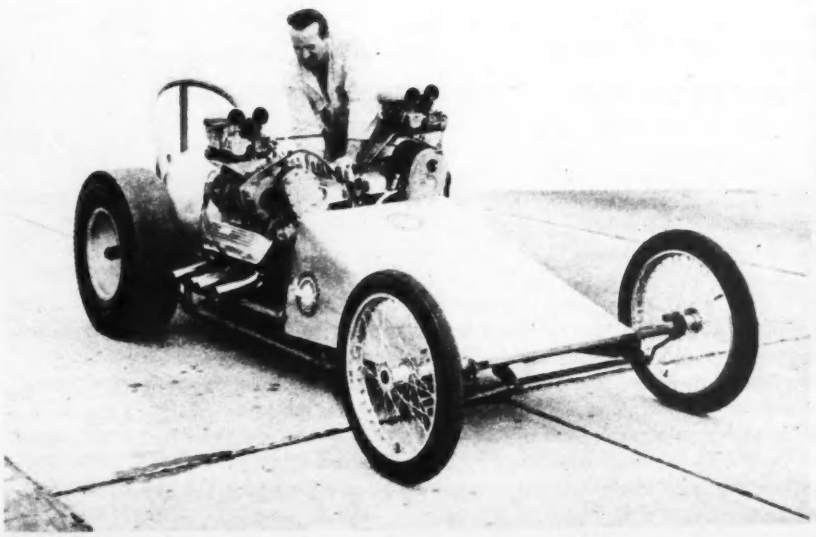
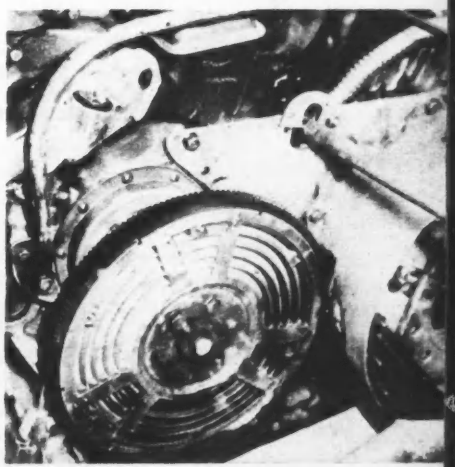
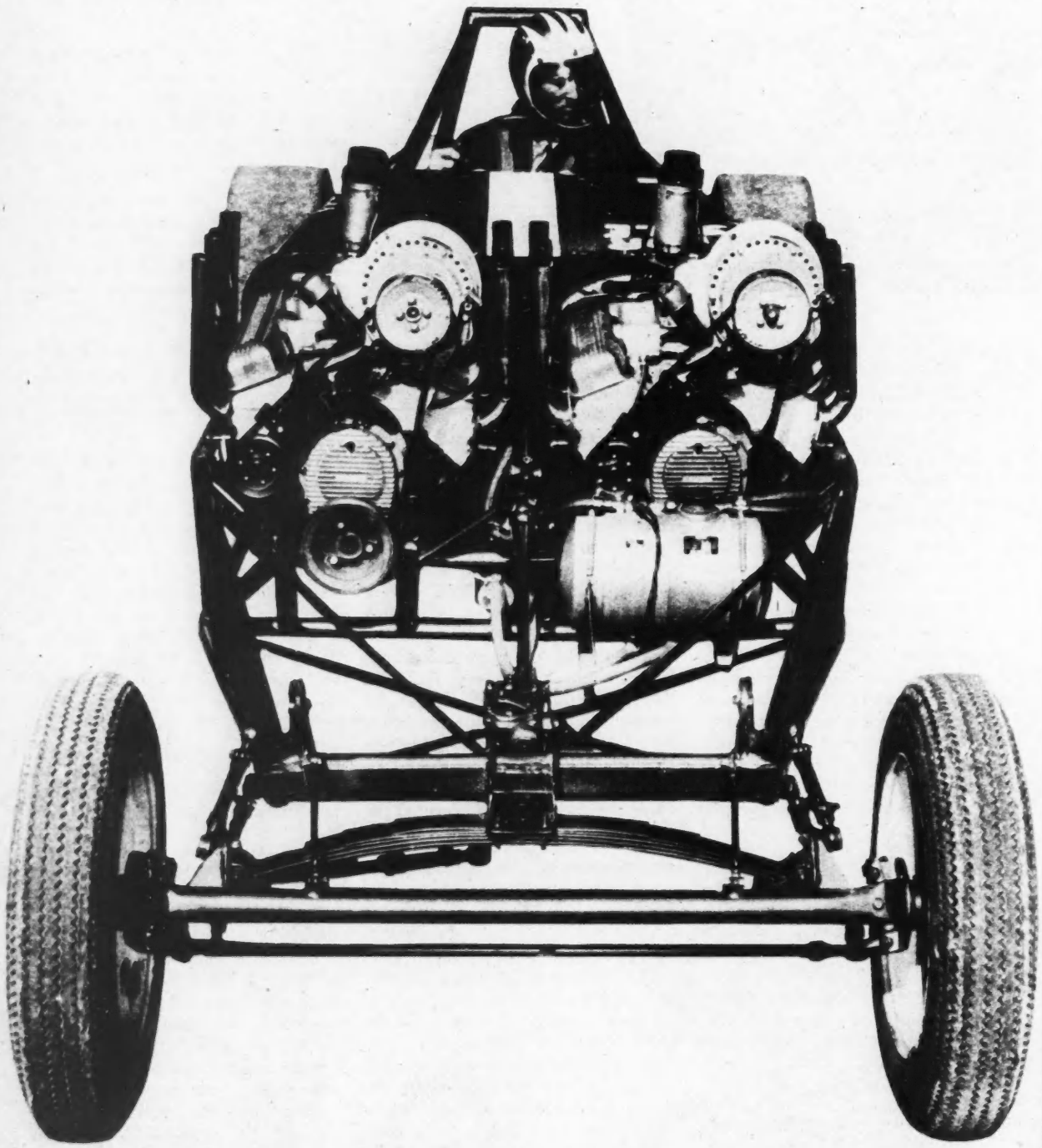
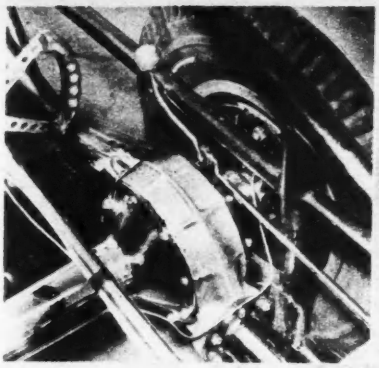


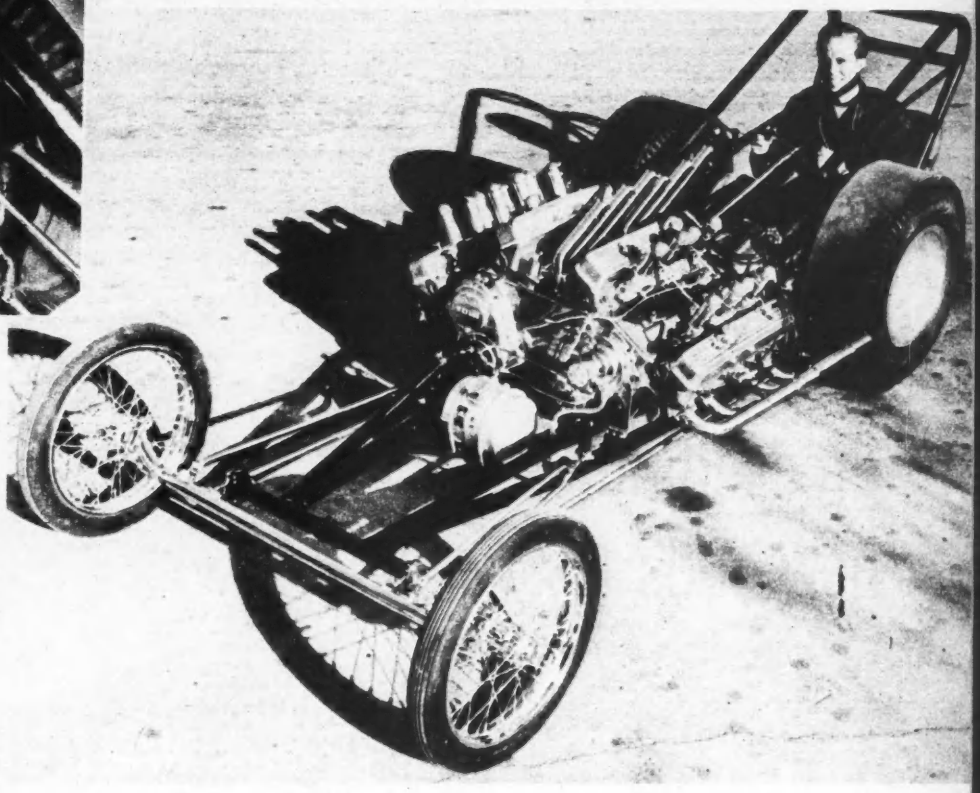


DUAL ENGINE DYNAMOS



Side-by-side engine arrangement in the Moss Automotive twin-Chevy was made possible by fitting the rear axle assembly with two ring gear carriers. Each engine drives its own gears but both gear setups rotate the same axle. An advantage of this type of drive is that it allows the use of two clutches instead of only one to transmit the combined torque of engines.





Tommy Ivo, shown at right in superbly built and finished dual-engined Buick, fulfilled his ambition to be the first to make history of the 9 sec. e.t. on gas when he made run of 8.95 seconds on Pomona, Calif., strip. This run was made Feb. 6 of this year and speed was 162 mph. Tommy also had another run at 8.98 sec. same day. Photo above shows offset quick-change housing in the rear axle assembly in Tommy's car. Lever controls the in-and-out box.

because he finds it easier to detect a miss in either of the engines when they are synchronized.

At first it doesn't seem possible that a two-wheel drive twin-engined dragster could use the same clutch, driveline, and rear axle assembly that would be used with a single unblown engine but such components are giving excellent service in these cars. It would seem that doubling a car's torque and horsepower would rapidly destroy conventional driveline parts but it must be remembered that the amount of torque that can be applied to a driveline is determined by the amount of traction the car's rear tires can provide. The roughest time for the driveline is at the starting line, between the instants the driver engages the clutch and the rear tires break loose. If a greater amount of torque is applied at this time, the tires just break loose a little quicker. Once the tires have broken loose it is practically impossible to overload the driveline. After the car has gotten underway, traction is still the factor that determines the torque load the driveline must carry. But even if the tires do get good traction at high speed, the facts that the driveline is in motion and the car's static inertia has been overcome make it practically impossible for two engines to load the driveline above the destruction point. Traction is, therefore, the safety link in the driveline that prevents any of its parts from becoming overloaded.

Parts of a single-engined car that may be entirely adequate in their original installation but dangerously lacking in ability to do their job when transferred to a twin-engined car are brakes. How efficient the brakes will actually be will depend on the type they are, how fast the car goes, and how the car is driven. It has been the experience of the drivers of some twin-engined cars that brakes that gave them no trouble on a single-engined car failed miserably when their duties were compounded by the additional weight of second engine and higher top speeds.

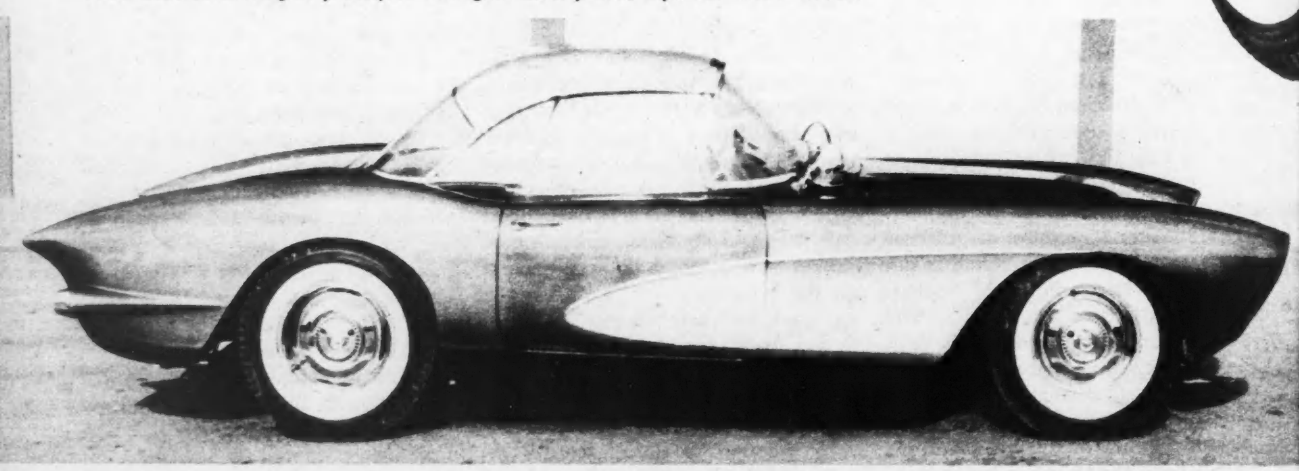
A good set of spot brakes should be equal to the task of stopping a twin-engined car but shoe brakes would likely lose interest in their job before the car could be stopped. Tommy Ivo found this to be true with the shoe brakes on his twin Buick. He solved his problem and added a little extra security by installing a ribbon-type parachute on the back of the car. Popping the chute adds enough drag to the car to allow the brakes to do their job.

Dragster design is far from static. It has reached its present level of high efficiency in easy stages. Its evolution started with single-engined cars that attained their maximum speeds on special fuels. Following the ban on special fuels by most of the nation's drag strips, it moved into the present blower stage: To go fast on gasoline, add a blower. The next stage is the multi-engine stage. Even though he may not be interested in dependability, a drag racer who expects his share of trophies cannot afford to overlook the performance potential multi-engines offer to those who are smart enough to find methods of improving driving traction. Once the solution is discovered for essential traction, the so-called two hundred miles per hour barrier for the quarter mile will be as commonplace as yesterday's one-fifty.

FIBERGLASS FINERY

A totaled Corvette dressed up in new duds

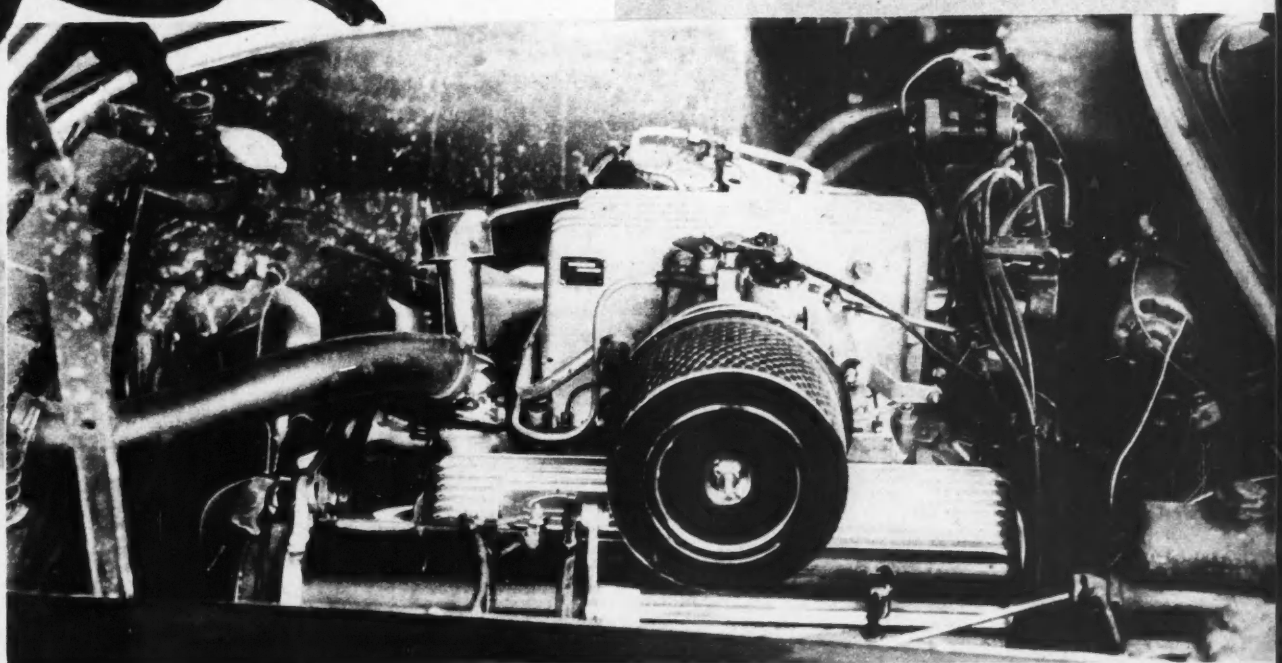
Bob McNulty of Castro Valley, California had the help of owner Bob Moreira who hails from Hayward, Calif., in construction of this '57 Corvette. The exterior color scheme is Burgundy lacquer with gold inset panel, top. Car was a wreck.



Profile shot shows extended fenders in front and rear. Fiberglass, naturally, was the customizing material. Emblems are removed, but stock door handles are retained. 2¼ coils are cut out of front springs to lend slight dago effect. Appleton spotlights are installed; reversed and chromed wheels have Edsel hubcaps. Restyling in resin occupied five months of time.

Nothing particularly happening externally on this fuel injection Corvette powerplant, but don't go by looks alone! Mill has carried Moreira to a top speed of 113 MPH in the quarter, with a time of 13 seconds flat. A Duntov camshaft, along with port, relieve job, high compression pistons and other speed modifications plus a four-speed trans help motivate car.

Photos by Frank Faracone



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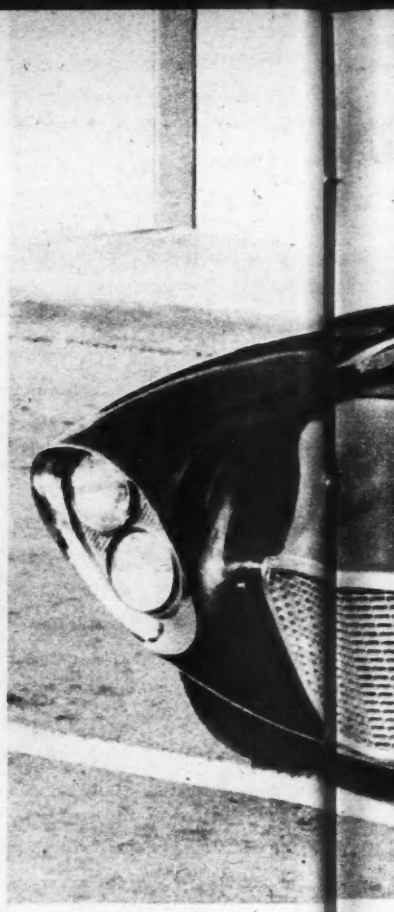
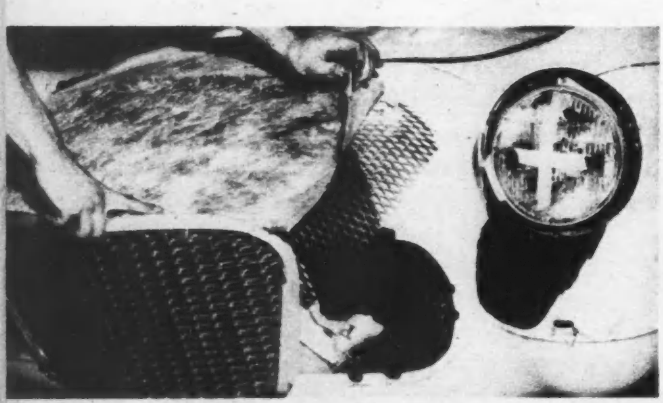
FIBERGLASS FINERY

Rear fenders are extended to form a fin; taillights are of Dodge origin, are mounted on both sides of peaked fin. Flaring was constructed for installation of the light units. Rear pan is rolled. Compare this photo with that on top of p. 23. Some difference!



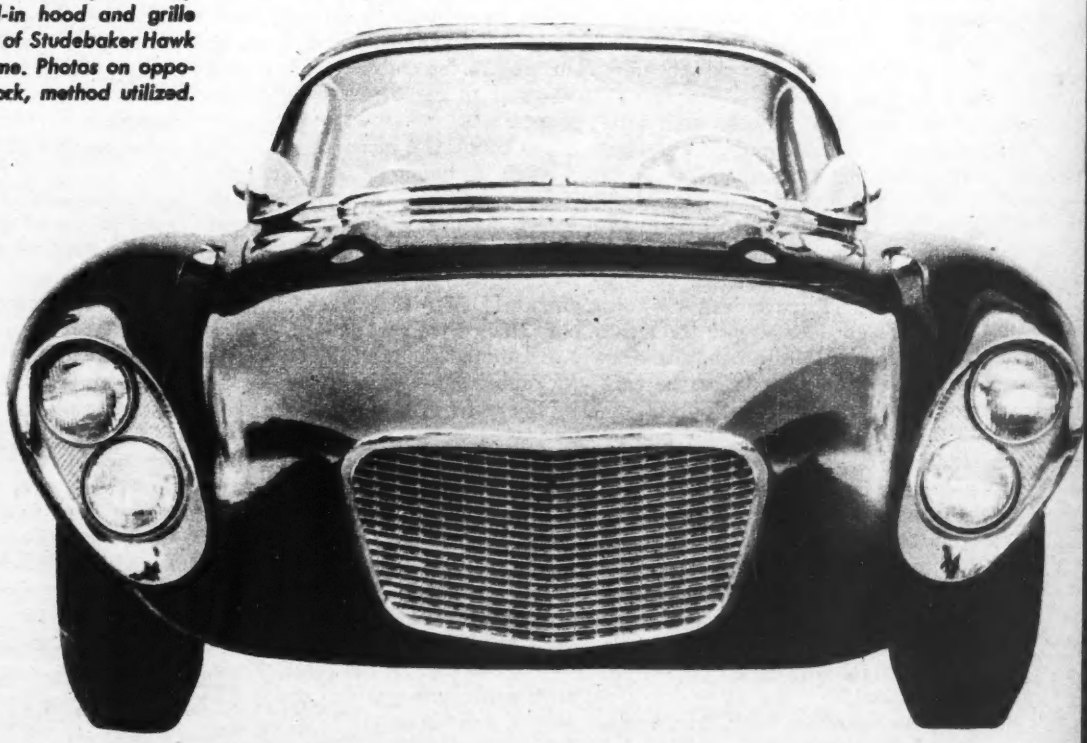
Front fenders are also extended, their length being six inches longer than stock dimensions. Quad headlamps are popular Lincoln assemblies mounted in a canted position. Bumper, such as it was, is removed.



Above, you see a photo that illustrates a bit of work of reconstruction. Heavy mesh screen supported glass mat that filled cavities in wrecked body. Opening cut for Lincoln headlights in the fender.

Complete white Naugahyde interior is pleated and rolled by Bob Cluez of San Leandro, California. Garnishings are enhanced by chrome plating. Rugs are contrasting black.

Facelift up front is accomplished by quad lamps, filled-in hood and grille area, and molding of Studebaker Hawk grille unit and frame. Photos on opposite page show work, method utilized.



the TRIUMPH

Illustrations by Willie Ito

AS PRESIDENT of the *Azusa Zoomsters* I am in charge of our club's custom-built kart. I was diligently wiping it down—in preparation for the big, forthcoming Karting Kompetition—when my brother club-members, Clarence Queeple and Tubby McPaunch, shagged gloomily into the garage.

"You look like wheels were just outlawed," I chirped pleasantly. "Why the long faces, man?"

"We got really big trouble," groaned Queeple. "Brother Fred Wobbs ain't gonna be able to drive for us next week as planned."

"Why not?" I demanded.

"Wobbs got tooken with the measles," mumbled McPaunch, gnawing on the inevitable candy bar he carried in his pockets by the dozen.

"B-But Wobbs is the only one of us *Azusa Zoomsters* who knows that particular track!" I wailed. "The rest of us have been so busy, playing pit-crew at all the races, we haven't racked up enough driving experience to give our club a decent chance of clobbering those insufferable *Burbank Buzzers* as they deserve to be clobbered for winning all the karting events lately!"

"*I* can drive that track," McPaunch stated from behind a mouthful of apple. "I been practicing on it, weekends, with my own kart, just for jollies."

Queeple and I stared at McPaunch. Thanks to his appetite, he closely resembles an over-weight elephant. Then, Queeple and I swung our gaze to the club's kart. It wasn't designed to carry over-weight elephants.

"No contest," I moaned.

"Wait a minute," said Queeple. "Somebody's *got* to represent us *Azusa Zoomsters*. What if we got McPaunch's weight down to where he ain't likely to flatten the kart? He already knows that track. It's the only chance we got, dad."

I squinted thoughtfully at rotund McPaunch.

"We can *try*, I suppose. We have one week before the race. Starting as of *now*—" I yanked the cupcake McPaunch held out of his hand before he could stuff it into his face, "—you're on a diet, big daddy!"

"I gotta keep my strength up," protested McPaunch. "I ain't gonna be able to drive if I get weak from hunger!"

"For the sake of the *Azusa Zoomsters* you're going to *find* strength in lettuce and lemon juice," I declared, frisking him for the hidden goodies I knew his pockets held. When Queeple and I were finished shaking him down we had six chocolate bars, three apples, a half dozen cupcakes, a C-Ration pack, four sandwiches and a small pack of dried apricots neatly piled on the floor. The guy was a walking snack-bar.

"I'll *starve!*" whimpered McPaunch.

"So starve a little," snapped Queeple. "We *need* that trophy! Them lousy *Burbank Buzzers* have been spreading word around that our club is comprised of chronic featherfoots who are too chicken to be considered dangerous competition! They even claim Wobbs caught the measles on purpose!"

The three of us clenched our teeth in silent rage for a few seconds.

"Get McPaunch over to the nearest Vic Tanny gym and see that he doesn't get near anything more fattening than Rye Crisp," I ordered. "A few hours in the steam-room followed by a thorough tussle with the exercise equipment ought to be good for forty or fifty pounds of that unnecessary lard."

McPaunch suppressed a scream of horror and he shuddered visibly as Queeple herded him out of the garage.

OF TUBBY McPAUNCH

By Carl Kohler

CONTINUED

the TRIUMPH OF TUBBY McPAUNCH

"The guy was a walking snack bar."

That afternoon, I went out to the track and ran our club kart over it a few times to get an idea of just which spots were most likely to give McPaunch trouble. It was a dilly of a course. In addition to the usual tricky turns there was a slight hill – gradually rising to a height of a hundred feet – before the track flattened out again for the remaining three-hundred feet to the finish line. If McPaunch's weight could be pared down to enable him and the kart to get over that hill we had a chance.

For the next two days Queeple put McPaunch through some of the heaviest exercise this side of a U.S. Marine Boot Camp. McPaunch's weight slowly began dropping. Imperceptively it went . . . 280 . . . 265 . . . 240 . . . and, finally, it reached 225. Hope began to blossom again in my fearful heart.

Then, disaster struck.

Queeple came pounding into the garage, his face the color of a sick mushroom. "THEY KIDNAPPED HIM!" he howled. "THEM LOUSY *BURBANK BUZZERS* KIDNAPED McPAUNCH RIGHT OUT FROM UNDER MY LOUSY NOSE!"

I dropped the air-filters I'd been carefully washing. "You were supposed to watch him," I said accusingly. "How did they get to him?"

"Phoney telephone call," Queeple wrung his hands in anguish. While I was stupidly jiggling the receiver on that fake phone call, them lousy *Buzzers* lured McPaunch right out of the gym!"

"Yeh, but why would McPaunch willingly go with them?" I pondered aloud." He may be awfully lardy, but every ounce of that lard is loyal to our group. Still, he's a real tub and they would have a first-class struggle trying to –"

"Hunger," said Queeple simply. "Pure, gnawing hunger did it. One of the gym attendants heard them promising McPaunch all the steak, malts and goodies he could eat! And him being out of his head with sheer hunger, he went along like a lamb being led to slaughter!"

"Come on, we've got to try and kidnap him back again before they manage to destroy him with chow and our chances of winning that race!"

The next forty-eight hours were a nightmare as we searched every cafe and restaurant and coffee shop in town. We split up—Queeple rotating around all the drive-in cafes in the county while I directed the rest of the club members, staking them out in every super-market and candy store.

Our search was a real nothing effort. We had regrouped back at the garage and were collectively staring failure in its bleak face when a car roared up outside, stopped, then took off again into the night.

"It's McPaunch!" yelled Queeple, peering out the door. "They've left him on our curb!"

Wearing a contented smirk and his belt loosened to the last notch, McPaunch sprawled on the curb a bloated picture of over-indulgence. Since he can gain weight just by inhaling the odor of food, his two days in the hospitable clutches of the *Burbank Buzzers* had completely undone all our good work. If anything, McPaunch weighed more now than he had when we started the dieting campaign. I rolled up my sleeves. Everybody rolled up their sleeves.

"H-Hey, wait a m-minute," cried

. . . *"each holding food of some kind to shove at McPaunch as he passed them."*

McPaunch piteously. "I can explain everything—"

"First, we give him a spirited rubdown," I told the club. "Then, we take him out for intensive road-work. Somebody get a rope and we'll lash him to one of the cars and let him run behind it for a few hundred miles. One way or the other, we've got twenty-four hours to get him in shape for the race."

At 10:00 on the morning of the great Kart Kompetition we arrived at the track with our iron and driver. McPaunch's weight was down to 210 by virtue of alternate steam-baths and road-jogging behind clubmembers' cars in low gear. McPaunch looked much thinner and a bit emotionally scarred for life.

While he lowered his bulk on the kart, I scanned the hordes of spectators lining the track. It was just as I suspected. About every fifteen feet stood a member of the *Burbank Buzzers*—each holding a food of some kind to shove at McPaunch as he passed them.

Quickly, I dug into my pocket and handed Queeple a roll of friction-tape. "You tie his meathooks securely to that steering wheel while I safely tape his big, fat, ravenous mouth shut," I said. "Those lousy *Buzzers* have just been outwitted!"

Moments later, the race began and soon the bashing, reefing karts were thundering around the turns and jockeying for position. McPaunch gamely fought to stay with them, our kart well behind the clustered karts snarling down the straightaways and screaming around the banked curves. Suddenly, McPaunch left the track and erratically began bouncing after another kart—driven by an unentered member of the *Burbank Buzzers*—which had two luscious pies dangling from its megaphones as bait to lure our boy out of the race!

"Oh, those dirty—" I shrieked. *"Everybody get over there and stop McPaunch! Quick, men!"*

We scrambled across the track and chased McPaunch, catching him just as he was following the kart out the main gate. Swiftly, we hoisted kart and McPaunch to our shoulders and ran back to the place where they'd left the track.

"Now get going again," I roared, *"or you aren't going to be in any condition to take a mouthful of food as long as you live!"*

McPaunch gunned the kart and sped off down the track in a cloud of oily smoke. The other karts were climbing the hill well ahead of him. Out of the corner of my eye I spotted two more *Buzzers* running out to the track, carrying a huge platter loaded with steaming food. They seemed to be headed right for McPaunch. Behind them, a third *Buzzer* loped along, bringing silverware and a napkin.

"Don't they *ever* quit!" I screamed, and instantly dispatched a couple of *Azusa Zoomsters* to intercept the *Buzzers* and their nutritious form of warfare. While they were tangling, I turned my anxious attention back to the track.

Disaster had struck again!

The kart's chain-drive had snapped under the strain of pushing McPaunch's weight up a hill, and the kart's engine raced wildly as McPaunch and kart slowly, horribly rolled backwards down to level track.

McPaunch was pulling frantically at his bound hands, twisting and turning until, without warning, the friction-tape snapped. At that moment he became one of the all-time greats. McPaunch grasped the rear-slicks and began energetically *turning them by hand* which took him to the top of the hill!

Laboriously, McPaunch and kart cleared the crest and started coasting downhill after the others. His momentum quickly built up until the kart's forward speed—thanks to McPaunch's immense weight—fairly threatened to scorch the rubber off their rims. Faster and faster went McPaunch, coming right up behind the other karts and streaking through them like a bowling ball rumbles through ten-pins! Then, he was flashing across the last few feet and the finish-line—a *winner!* The *Azusa Zoomsters* were in!

I stopped dancing joyously with Queeple to gaze bewilderedly at McPaunch who was still in motion.

"Hey, where does he think he's going?" I asked, confused.

Instead of braking to a graceful halt, McPaunch and kart blasted down the short, remaining stretch of track, jolted across rough ground, leaped a row of parked karts, ricochetted off a pickup's tailgate and went sailing out the main entrance.

"Ye gods!" I gasped. "His brakes must've given out!"

"Brakes my aching earlobe," murmured Queeple calmly. "That character knows exactly where he's going." Queeple pointed for my benefit.

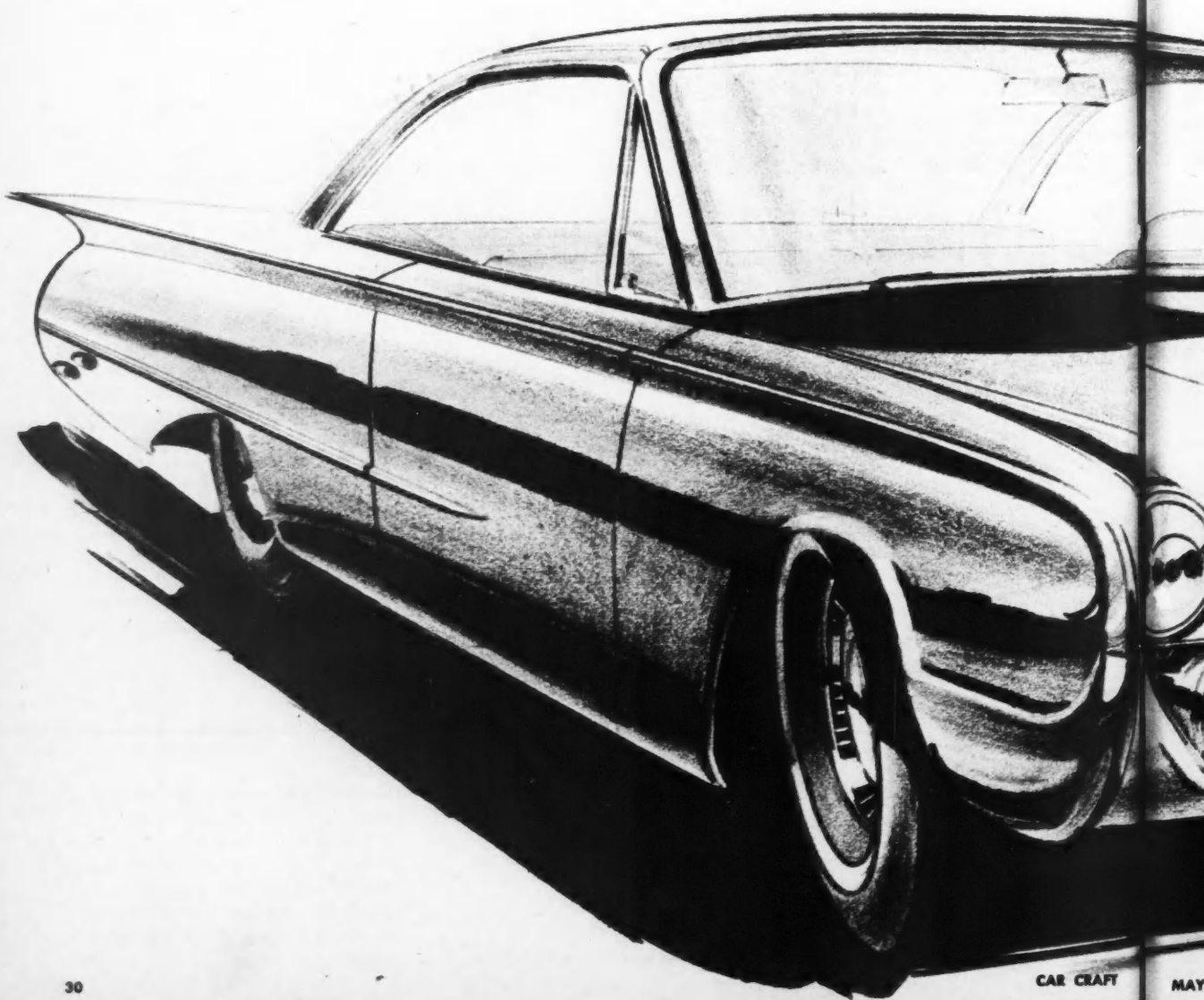
McPaunch was still barreling down the highway at a fine clip. With a busted chain-drive and only his own lardy momentum to carry him, he was still making time.

And he was steadily gaining on the Good Humor truck just ahead of him.

..."while I safely tape his big, fat, ravenous mouth shut!"

WILHELM CUSTOM SHOP **RESTYLES** THE '60 FORD

Joe Wilhelm



AS YOU'LL RECALL, the February issue of CAR CRAFT featured our annual Custom Forecast. In that story, Joe Wilhelm, our guest customizer this month, stated that: "Ford's change-over styling will go big with the younger owners. Ford is years ahead of their earlier boxie styling. *You can do anything to the new '60 model.*" Though we're not the type to hold anyone strictly to their word, we were interested in Wilhelm's interpretation of the '60 Ford, our custom bait for May. Therefore, the following is an account of the modifications he performed to the '60 Ford Sunliner limited only by the customary $1000 budget for metalwork and parts.

BODY MODIFICATIONS

A side view reveals a reworked front fender well. This was done strictly as an effort to make a cleaner 'cut'. The rear panels of fluted chrome behind the wheels on the quarter panels are removed. Dual Buick portholes are added as exhaust tips on each side. The side trim is retained.

FRONTAL CHANGES

Wilhelm feels that the Ford appears to be long enough, yet it lacks

ILLUSTRATIONS BY LARRY EVANS

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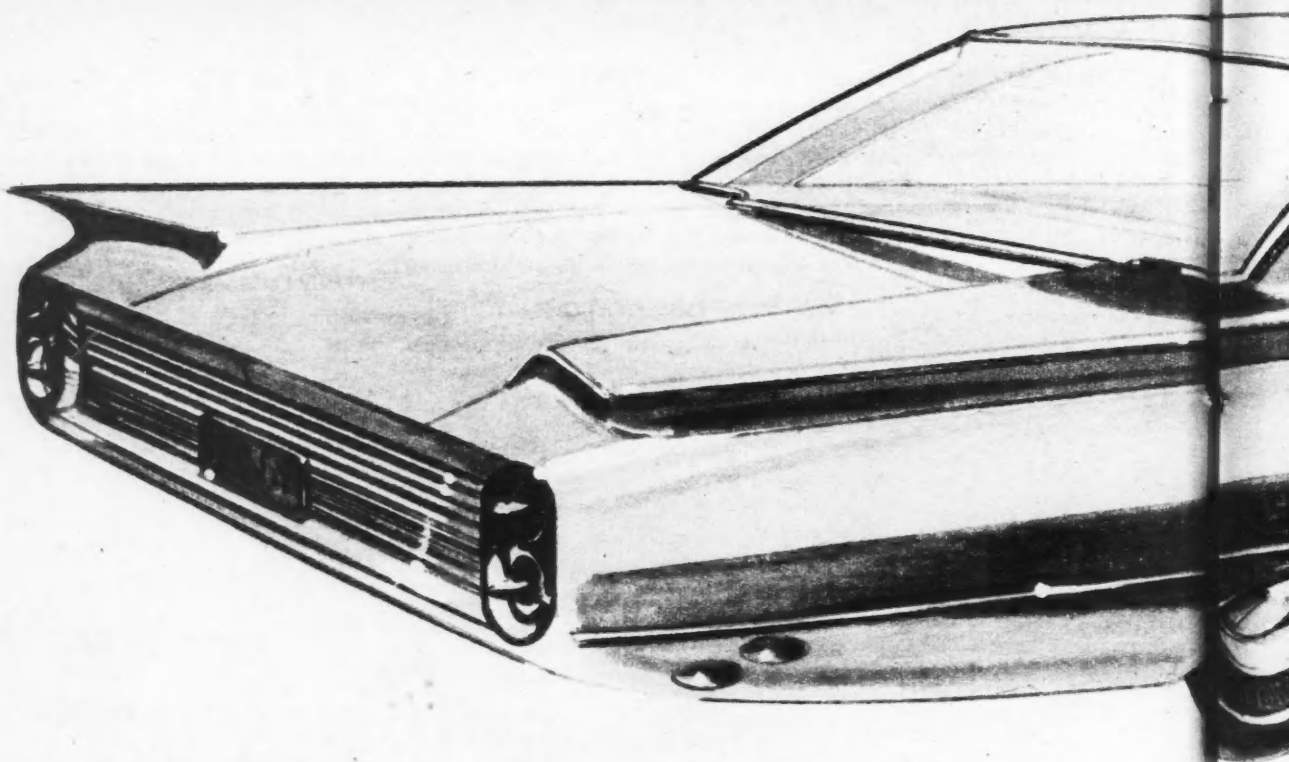
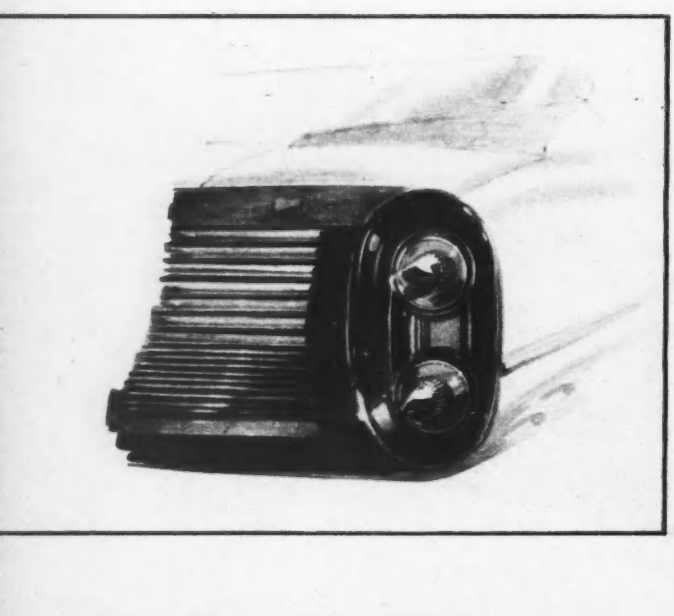


RESTYLING
THE '60 FORD



the "wide-look" up front. To remedy this, he has redesigned the front in a split-level motif. This is most obvious in the headlight department where he has separated the quad lamps with a thin chrome strip bar that also divides the grille cavity into two sections. To install the lights, the sides of the grille shell had to be reworked. Metal fills in the sides and the lights are canted. To connect the two units so that they don't appear to be too widely separated, a molded ridge is employed along the outward sides. The bumper is removed and the pan is rolled in the standard manner which gives a definite smooth appearance to the front. In the center, an opening is provided for front license plate installation which is required in many states. The chrome trim which surrounds the grille cavity in stock form is removed, as is the emblem. The hood edge above the shell is extended to form a straight, unbroken line and also to conform with the theme initiated by the dividing grille bar. The grille itself is composed of two upper halves of the '59 Cadillac assembly, which is also donater of the center straight bar. Backing up the Caddy grille is a heavily plated copper mesh screen designed to bring out the richness of the grille.

Wilhelm's theme for the front is one of basic simplicity. There are no unrelated lines or curves; they are all foundations for the complete design. What he has achieved, in a word, is unity.

REAR ASPECT

Wilhelm obviously feels that the Ford stylist dropped the ball in the backfield. The entire stock Ford rearend trim assembly, including taillights and bumper, is removed. To replace this, we'll start with a rearend grille. One interesting aspect of the grille is that it does

not carry the design theme of the front to the rear as have so many of the popular conversions seen during the past year. In some instances, the repeat of the front on the rear is best, but Wilhelm feels that the rear grille should be designed about the existing contours of the area and not merely as a duplicate of the front end. Therefore, the grille is constructed of tubular steel bars and is set into the slightly tunneled cavity found on the stock body. Chrome trim used to border the stock rear is removed and all of the remaining metal is molded to form a smooth lip that frames the rear. On either side of the rear grille are the taillights. Four red plastic lenses, plain surfaced, are mounted in a tapered steel frame or, if you wish, you can use '60 Cadillac bumper tips. On the plastic lenses, Wilhelm has installed a single '59 Cadillac taillight lens. Thin, small tube metal or mesh screen can be used as a visual connector between the quad lamps. Rolled pans being popular this year, Wilhelm has left the rear devoid of a bumper and has reworked the lower metal to conform.

PRICE LIST

	Labor	Parts
Install grille halves	$ 30.00	$ 80.00
Install grille bar	40.00	60.00
Rework grille metal	150.00	50.00
Rework wheel wells	35.00	10.00
Install taillights	10.00	30.00
Construct rear grille	40.00	50.00
Rework rear metal	110.00	10.00
Body modifications (dechroming, etc.)	100.00	10.00
Paint	130.00	
	$645.00	$300.00
	300.00	
TOTAL	$945.00	

DETAILS

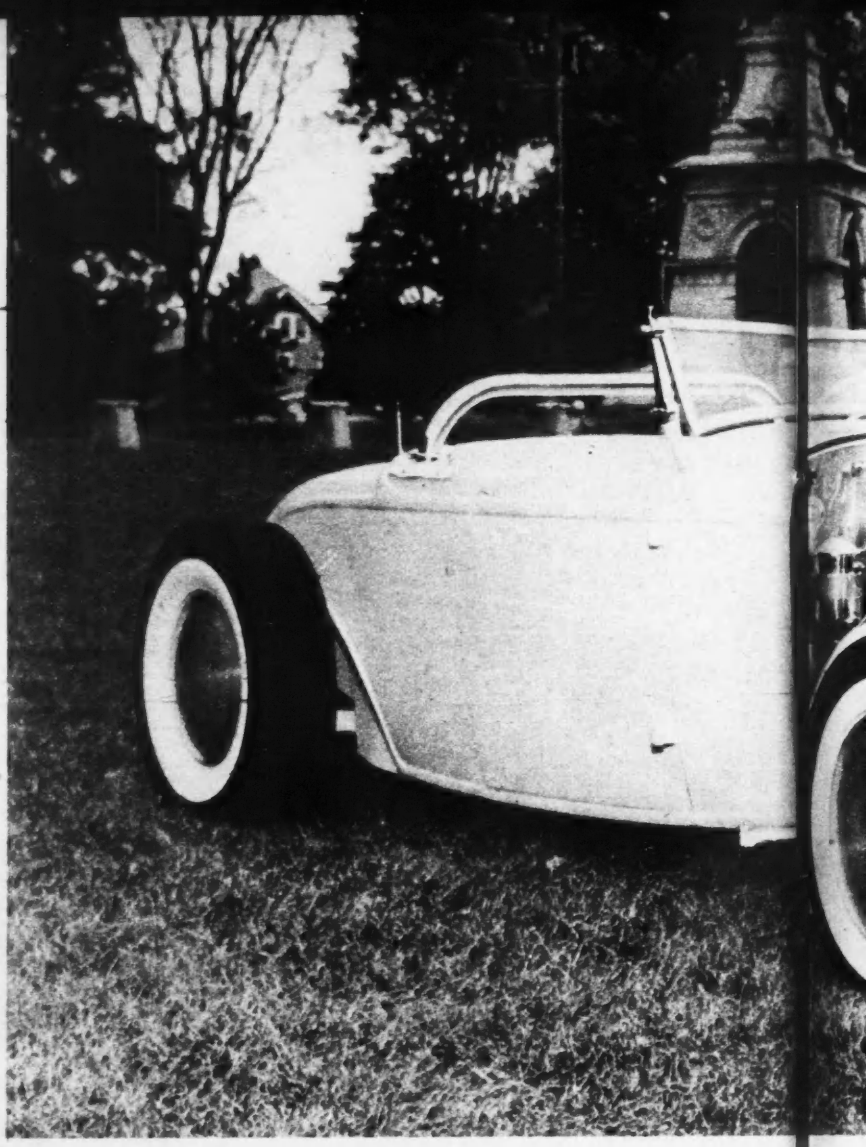
Since the stock gas filler spout is center-mounted in the rear fluted chrome piece, and we've changed all of that, Wilhelm has re-routed the pipe and it is now a resident of the trunk. The rear license plate is bolted to the grille tubes.

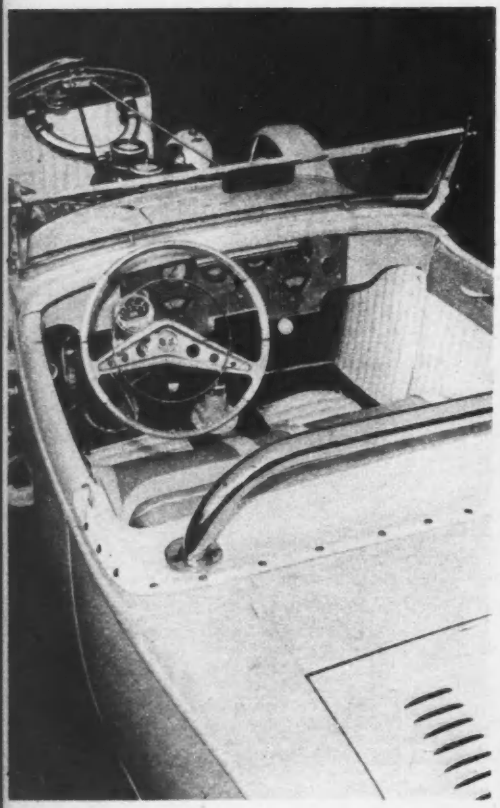
Paint is up to the owner; Wilhelm suggests a solid one-tone paint job. Scalloping appears to be out of place on this custom.

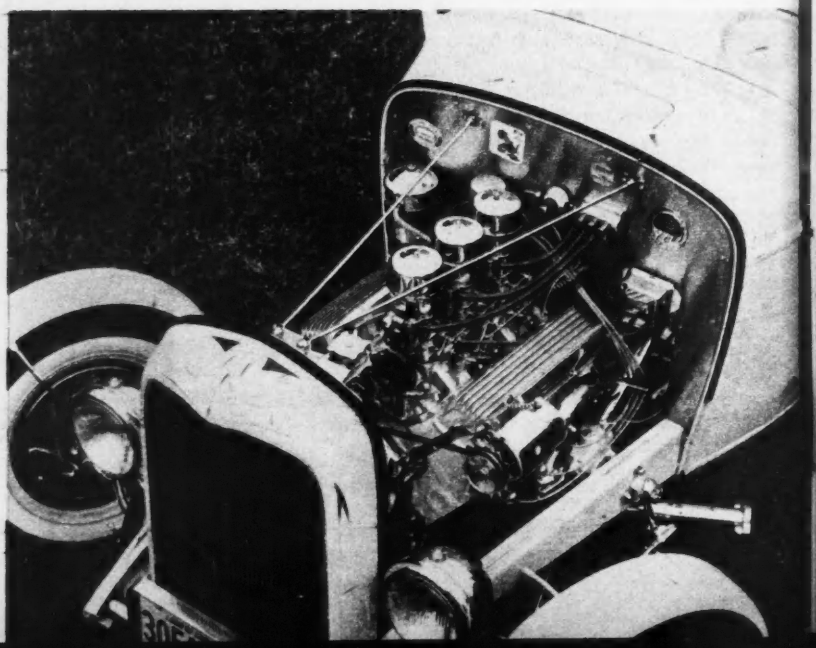
Whether or not the Custom Forecast prophesy comes true remains to be seen. However, most of the customizers agree that the '60 Ford is the custom potential of the year. This is only one of the possible interpretations.

PARTNERS' PRIDE

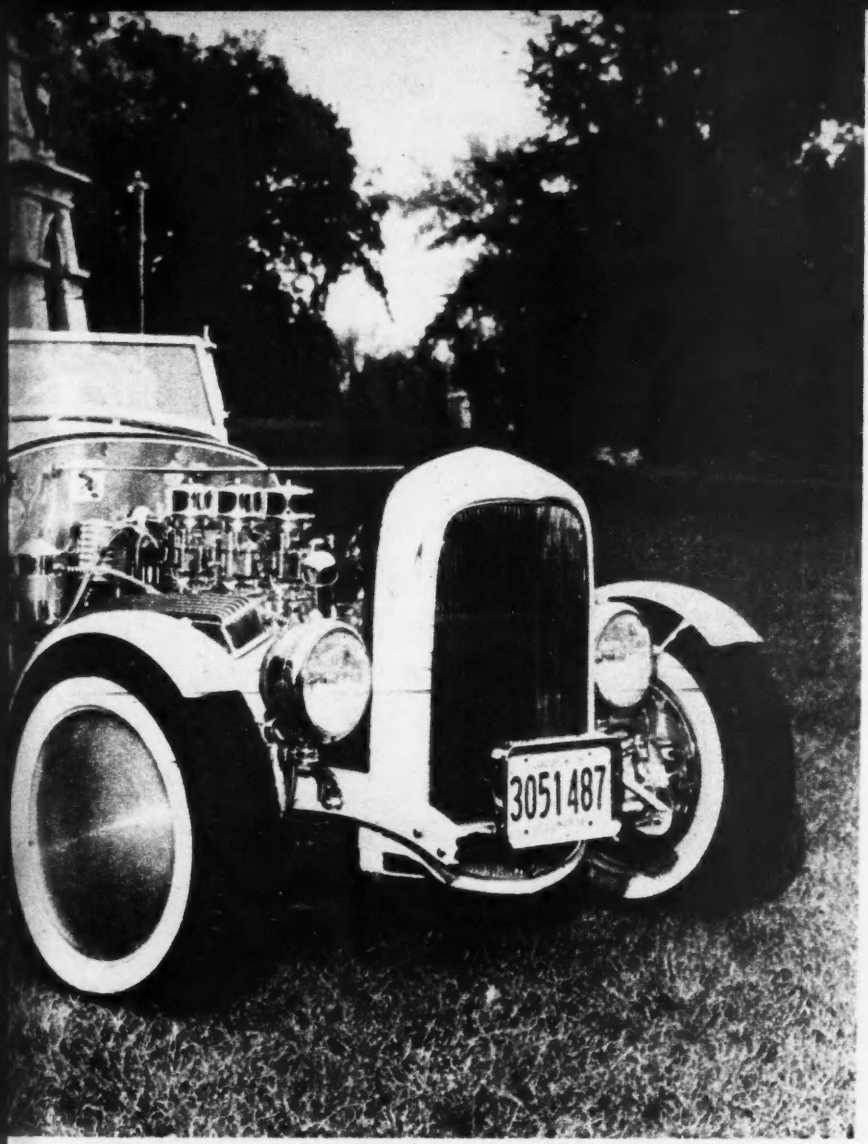
Beautiful roadster from Illinois — built and owned by Dick Blaine and Ron Freedlund







Photos by Bob Hegge



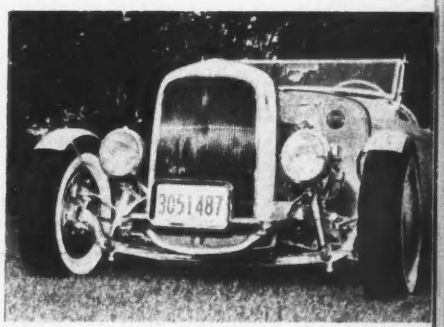
The first rod for both Ron Freedlund and Dick Blaine, this '32 Ford is the toast of their hometown club — Barons Hot Rod Club of Bloomington, Illinois.

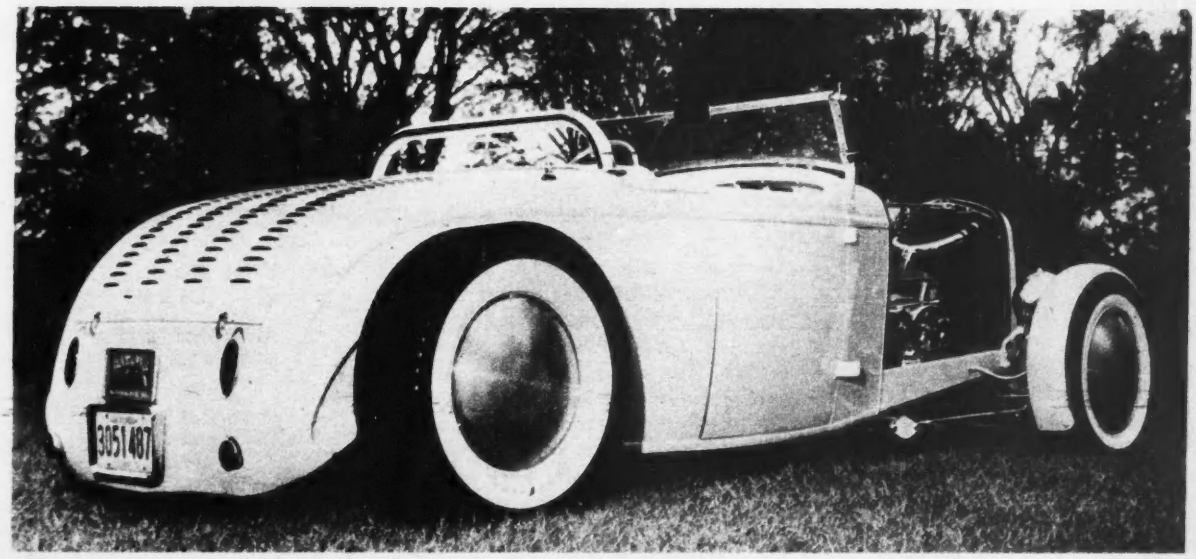
Roadster is 4-inches lower on chassis by channeling; front fenders formed of Continental tire covers. Low windshield is result of 3½-inch chop job.

'55 Chevy mill dropped in to replace trusty ¾ race Merc flathead for more suds. Heads are milled .060, Edelbrock manifold with three Holley '94' carbs.

Chopped, filled deuce shell sits proudly between frame rails. Running gear: '40 Ford front suspension, 3-inch dropped axle, '47 Lincoln rear, '40 steering.

Dash is rare '37 Cord panel with S-W supplementary gauges. Upholstery is in blue/white Naugahyde by SmittiesTops in Springfield, Ill. Wheel is Impala.





Photos by Colin Crettz

BIG FOUR-BARREL FOR FORDS

Easy carburetor swap adds thirty-six horses

By John Geraghty

THE STOCK CAMSHAFT timing, large ports and valves of the '58-'59-'60 Ford 332 and 352 cu. in. engines add up to potentially high volumetrically efficient powerplants. Volumetric efficiency is a common term used in the measure of fuel air volume allowed to enter each cylinder during the complete intake cycle in relation to the fuel area of the cylinder at B.D.C. (bottom dead center). 100% volumetric efficiency is the ultimate condition desired but reaching this point introduces many obstacles which cannot be completely overcome due to engine design. The end result of all proven "Hop up" procedures raise the volumetric efficiency of whatever engine they are applied to as higher volumetric efficiency rates and maximum height RPM horsepower are synonymous.

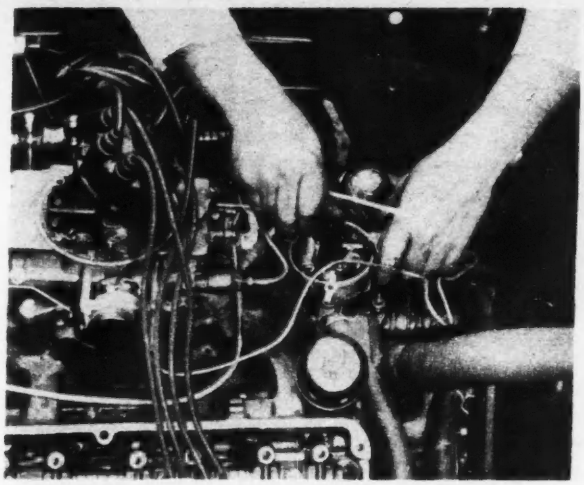
The stock carburetor is equipped with small venturis and throttle bores which tend to restrict the flow of fuel and air mixture reducing the high RPM volumetric efficiency. Although this sounds like a famous Detroit blunder there is a very good reason for this. Today's average new car buyer demands high performance and expects a degree of economy nearly impossible in all types of operation.

In order to hit a happy medium between these points high gear ratios are used as standard equipment. The higher gear ratio allows engine RPM to stay relatively low under all normal driving conditions which helps to produce these extra miles per gallon. Along with this high gear operation another problem is commonly introduced. Low speed performance at full throttle operation is automatically destroyed. This is caused by the exhaust valve being open at the same time as the intake during the camshaft overlap period. Exhaust pressure overcomes the atmospheric pressure of the intake charge and forces the fuel air mixture back through the carburetor throat. This is the reason for restricting the throttle opening at low speeds. The small primary venturis and vacuum controlled secondaries retain a certain amount of manifold pressure during the overlap period and reduce the exhaust blow back.

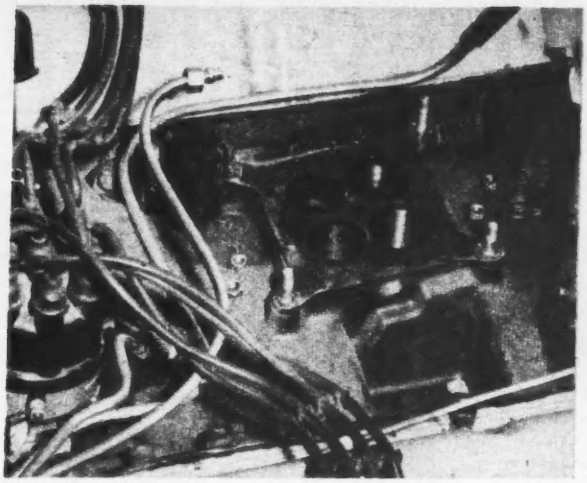
The drag racing enthusiast desiring high RPM performance must increase the carburetor venturi area and therefore up the volumetric efficiency. There are several ways of accomplishing this. Multiple carburetion is the most common of these. Being not only expensive, multiple carburetion introduces many undesirable installation and operational problems. We have found the installation of a larger 4 barrel type carburetor to be not only the most trouble free but also leaves very little to be desired in performance. The carburetor selected for this installation is a Carter AFB all aluminum 4 barrel used as standard equipment on 1959 Buick Roadmasters. The complete installation procedure and comparison H.P. figures can be found in the adjoining picture caption story.

HORSEPOWER CHART
1960 Ford 352 cu. in.

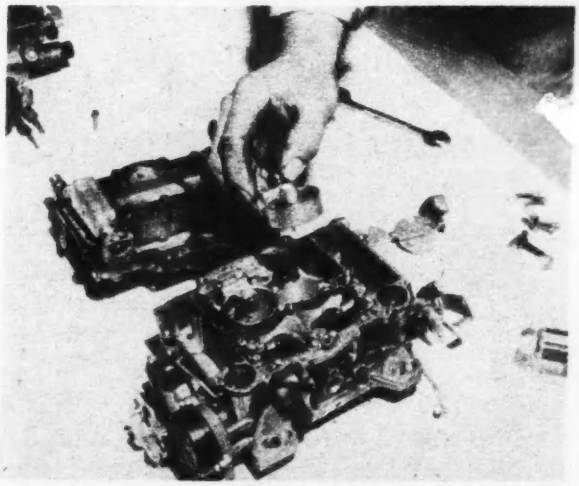
RPM	HP Before	HP After
3000	120	129
3500	145	160
4000	152	175
4500	147	168



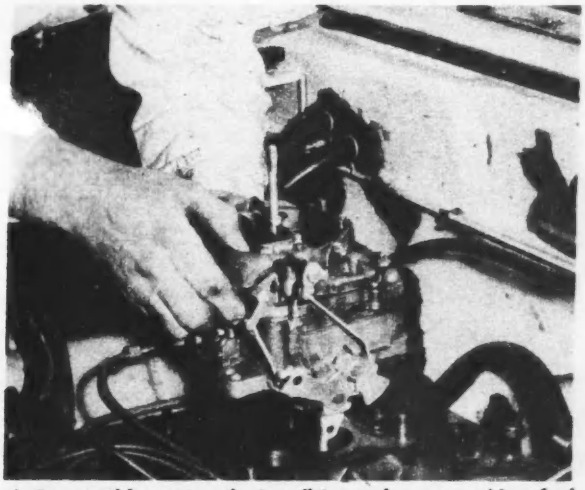
1. The distributor cap is removed and a note taken on the rotor position. Next remove distributor and intake manifold.



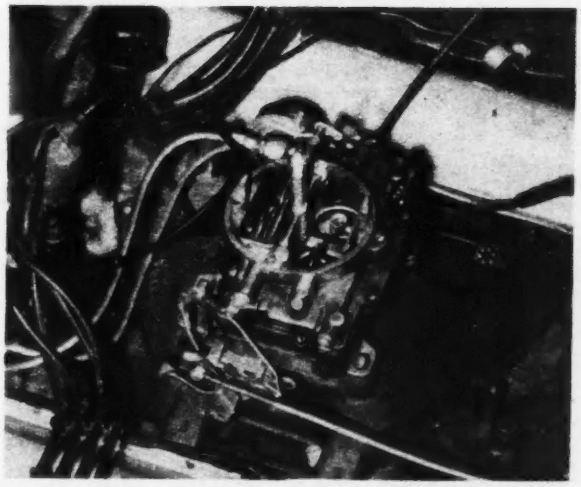
2. Carburetor is detached from the manifold and manifold throttle bore is enlarged to match the Carter venturi area.



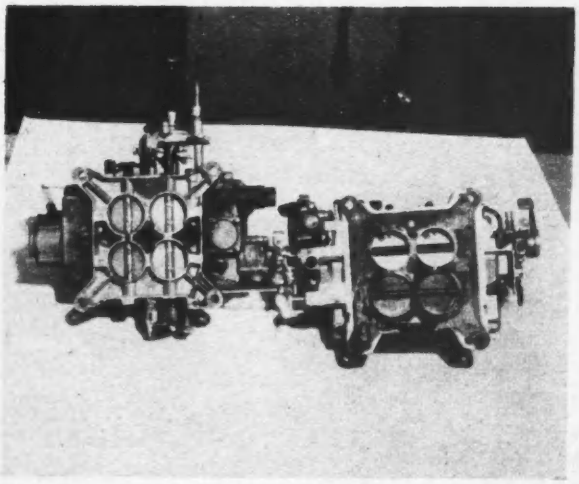
3. Clean and replace manifold as shown in previous photo. Dismantle carb, remove primary jets and enlarge them .002.



4. Reassemble new carb, install in stock manner. New fuel line must be formed of 5/16" copper tubing and installed.

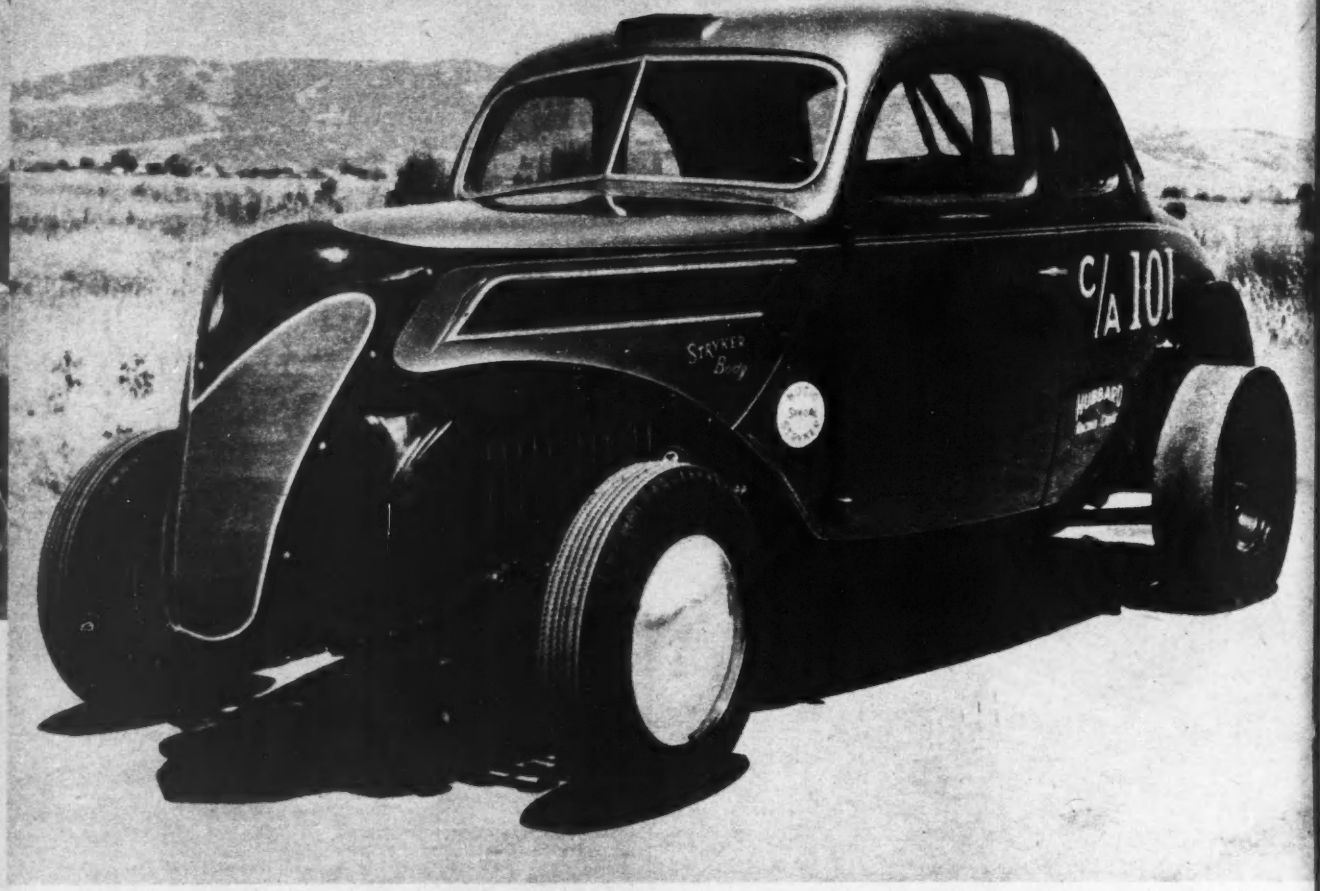


5. The completed installation gives a neat, stock appearance as well as increase in performance shown in chart.



6. Photo above shows the increased venturi area of Buick AFB Carter as compared to stock Ford carburetor at left.

STRIPPED FOR ACTION



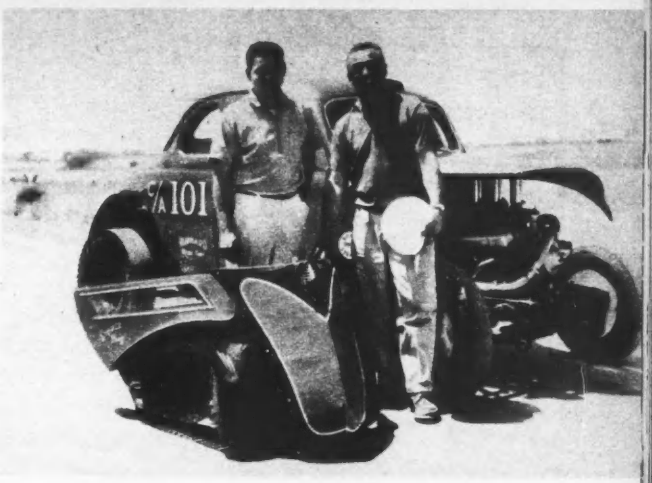
First glance spots the unique hood which appears to be specially constructed but is actually the stock assembly. Only difference lies with attachment of inner fender panel to hood instead of stock chassis mount. Colors: Sierra Gold and black.

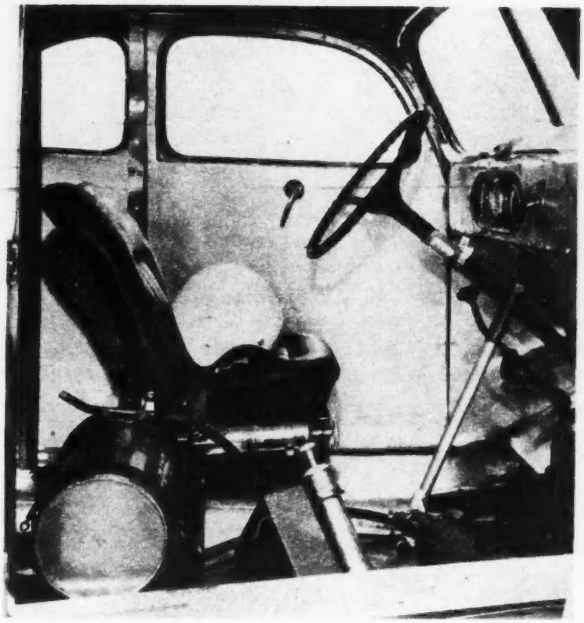
Fenders are removed for drag strip action; the trunk is louvered for air exit. Taillights are mounted high on deck. Bruce slicks are run with 3:78 gearing.

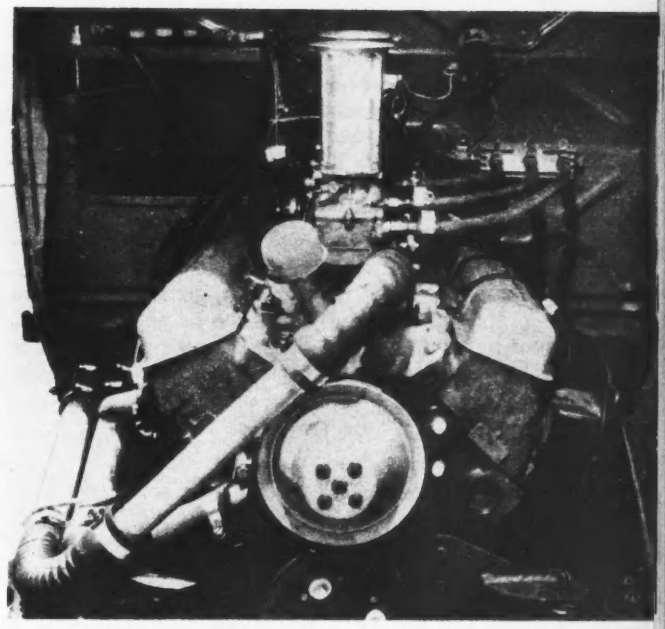
Bill Stryker on left and Ed Bosio are owner and driver respectively. Both hail from San Francisco and total 30 years of automotive interest between them. Top time for '37 Ford coupe is 106.31, E.T. of 12.49 clocked at No. Cal. strips.

RIGHT • '57 Chevy is stock bore and stroke, but has Hubbard cam and lifters, Jahns pistons, Chev heads reworked to 10-1 compression, Edelbrock triple manifold, Hedman headers, Weber flywheel and clutch. Trans is '39 Ford.

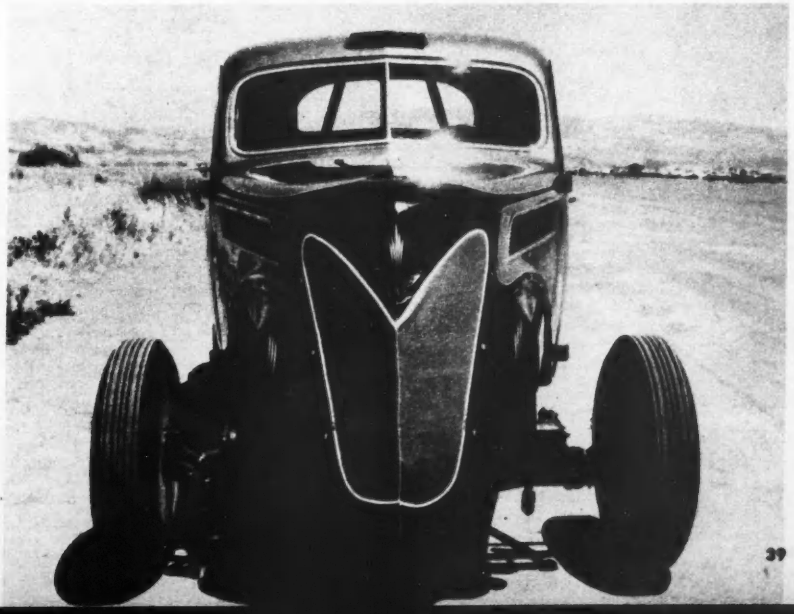
Stark interior is still attractive due to use of aluminum panels for doors, quarter panels and dash. Single bucket seat is black Naugahyde stitched. Fuel tank, pressure pump are mounted in cockpit with necessary fire extinguisher.







Running gear and chassis are stock on the coupe. A small airscoop is added to roof for cockpit air, relieved by the trunk louvers. Unusual appearance is accomplished by fender removal plus close mesh screen added to grille shell.

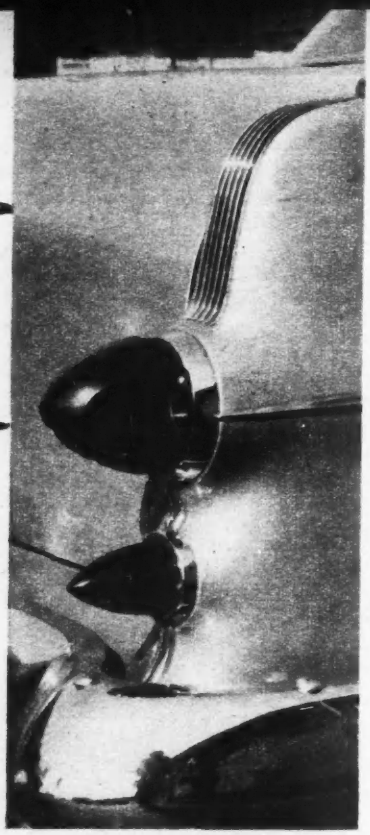


Photos by Frank Faraone

the CAD CRAZE

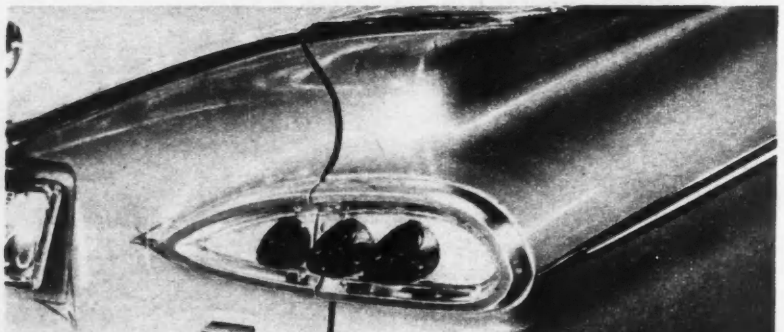
IT NEVER FAILS that out of the latest crop of automobiles, certain parts or assemblies 'catch on' with the customizing crowd and become a fad and sometimes a classic. The Lincoln quad headlight assembly and the '53 Chevy grille are just two. From the looks of things now, it appears that the tear-drop styled '59 Cadillac taillight lens is destined to join this group of custom standards.

When the Cad light first appeared, its popularity spread like wildfire. This can be traced to several factors. First, it possesses a sleek styling, in step with today's futuristic restyle jobs. Secondly, its small size enabled customizers to install it on numerous automobiles. Thirdly, it lends a definite custom appearance to a car because its physical shape and design make it obvious to the eye. And finally, compared to many of the complex taillights available, the Cadillac lamp unit is relatively inexpensive.

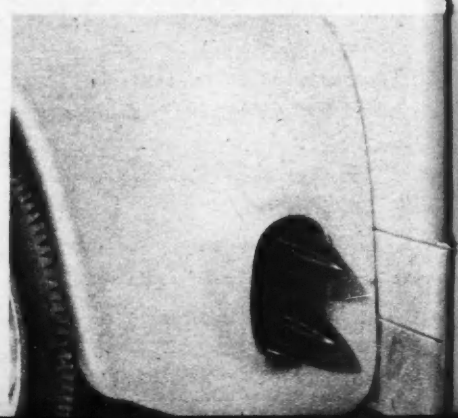


The '59 Cadillac taillight lens is so adaptable to a multitude of cars it can be employed in numerous forms. Here, it replaces back-up lights on a Pontiac.

A '57 Chevy custom is bait for a Cad lens treatment. Dual bullet lenses are frenched-in to area originally occupied by stock taillights. Note metal peak.

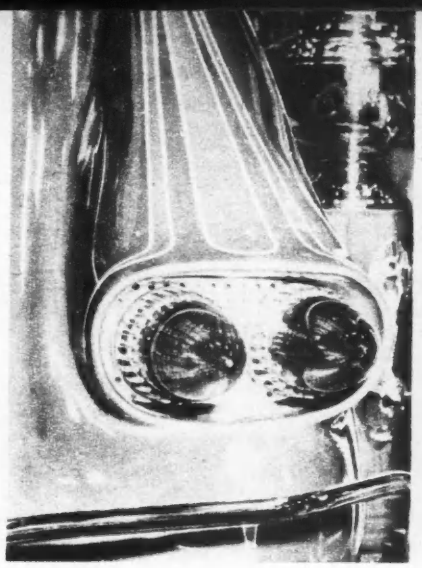


One of the first cars to receive the taillight switch was the '59 Chevy. A fiber-type backing plate is fitted to the stock frame, three Cad lenses added.

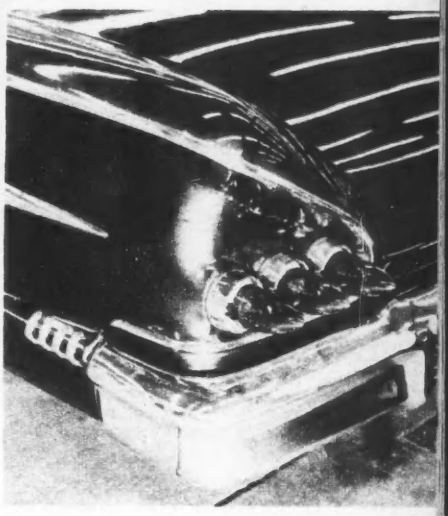


A late Ford pickup utilizes sleek styling of the Cad lenses, two being tunneled deeply into molded cavity. A simple metal plate is used for attachment.

This custom features two complete Cad taillamp assemblies — gear-type rings and red lenses — in tunneled position. Perforated metal screen mounts them.

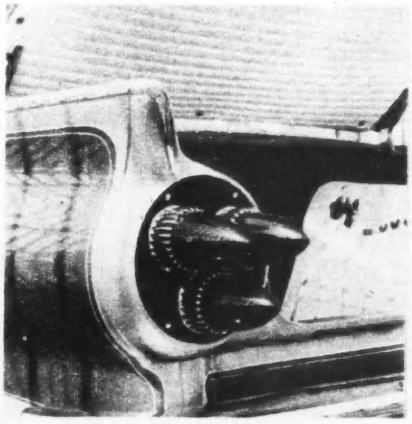


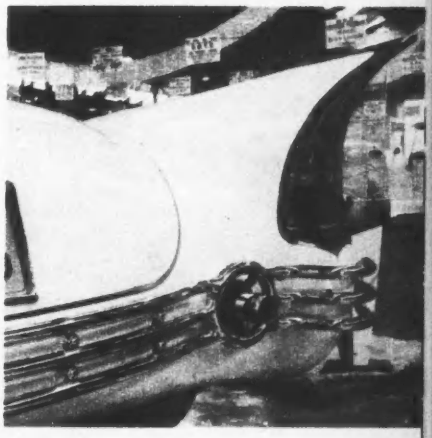
FAR RIGHT TOP • Triple set-up of Cad taillights is natural swap for the '58 Chevrolets. Some use stock Cadillac rings, other use plain bands as here.



RIGHT CENTER • A classy installation for '57 Fords. Backing plate consists of plain surfaced plastic replacement lens. Three Cad assemblies are bolted to it.

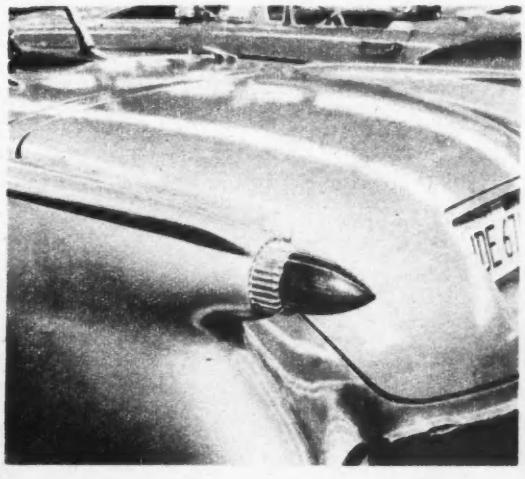
FAR RIGHT CENTER • This rear fender fin belongs to much-modified Corvette. Lens, sans chrome ring, plays major role in special taillight glamorizing.



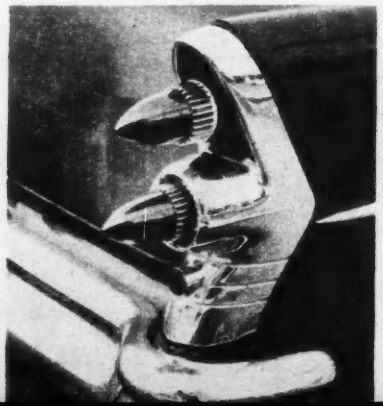


RIGHT BOTTOM • The early model Corvette with single taillight housing in fender is just begging for the Cadillac treatment. The entire unit is installed.

FAR RIGHT • Late Corvettes with their nice scoop taillight housing is also a perfect mating for the '59 Cad lens. Again, the entire lens assembly is used.



BELOW • This '56 Buick is enhanced by two lenses. Circular opening is an ideal setting for the lenses, while ingenious use on plain top lens is seen.



KING *of the karts*

Photos by Lang, Holt

By Bud Lang

DURING THE PAST YEAR an unassuming young man has been making his presence felt on Southern California's hottest kart race courses with his consistency for winning. Today the name of Jim Yamane is synonymous with karting activities the world over. The twenty-six-year-old Japanese-American has been the topic of conversation by fellow competitors and karting enthusiasts more than once since his victories at the Nassau, Bahamas World Championship races, where he was crowned "King of the Karts." It was there that he displayed his keen driving talents by dusting off the hottest karts in the nation winning the fifty mile International Trophy Race. When the checkered flag fell on the grueling hundred lapper Yamane had spent over an hour in the cramped open cockpit of his small speedster. He finished a full mile ahead of his nearest competitor, many of which outclassed him considerably with additional horsepower.

Anyone driving a kart of such dependability and performance is undoubtedly suspected of possessing a piece of equipment that is extraordinary. This is not the case with Yamane however. Jimmy got his start when karting was in its infancy, having designed and constructed two earlier models using single engines. From these he graduated to his present home-built kart.

When the potent MC-10 kart engine became available at McCulloch, Jim, a nine-year employee, was one of the first to utilize two of these powerplants, building his present kart to adequately handle the increase in horsepower. This latest rail speedster is constructed of various size tubing, some extra large in size while other structural members are more standard in diameter. Jim is obviously not obsessed with weight saving in the chassis department feeling that a happy medium between both rigidity and minimum weight is an ideal approach to framework. This was what caused the downfall for many of his Nassau competitors while running the rough island race course, their karts literally fell apart due to the rugged punishment.

Yamane's present kart is nothing spectacular from the beauty viewpoint. A good example of the kart's simplicity is in the throttle and brake pedals, constructed of non-elaborate "L" shaped steel rods. The seat frame and steering column mount are of strap iron. Up front the tie rods are of husky rod, with the axle reinforced with gussets, as are many strategic points in the frame. This gusseting insures a stable front-end, very important when you consider all the strain dealt these members as a kart is driven hard into corners time and again. The only department in which Jim has actually made any attempt to save weight appears to be in the wheels, where he runs Hands magnesiums all around.

With the strength implied by this solid chassis and axle design, one would get the impression that Yamane's kart would handle confidently, a twist of the wheel and the kart responding just as rapidly. Evidently this is the case, and with Jim's cool manner of driving this team is proving unbeatable. In the heat of competition, Jim displays the finesse of a veteran sports car driver on a road course, moving his kart smoothly through the turns. He doesn't go in for the flashy full lock broadslides, only the prolonged drifts that retain rpm of his small powerplants. This is an important factor in any kind of auto racing, in essence, what many drivers refer to as – control! A driver who has the ability to get the maximum out of his machine without risking the chance of losing it in corners through unwise use of power has the potential of winning if determined. This point was demonstrated by the very impressive win Yamane had at last year's Go Kart Nationals. Blowing up his class "A" engine a few feet from the finish line during the first of three heat races, Jim borrowed an engine to take the next two heat

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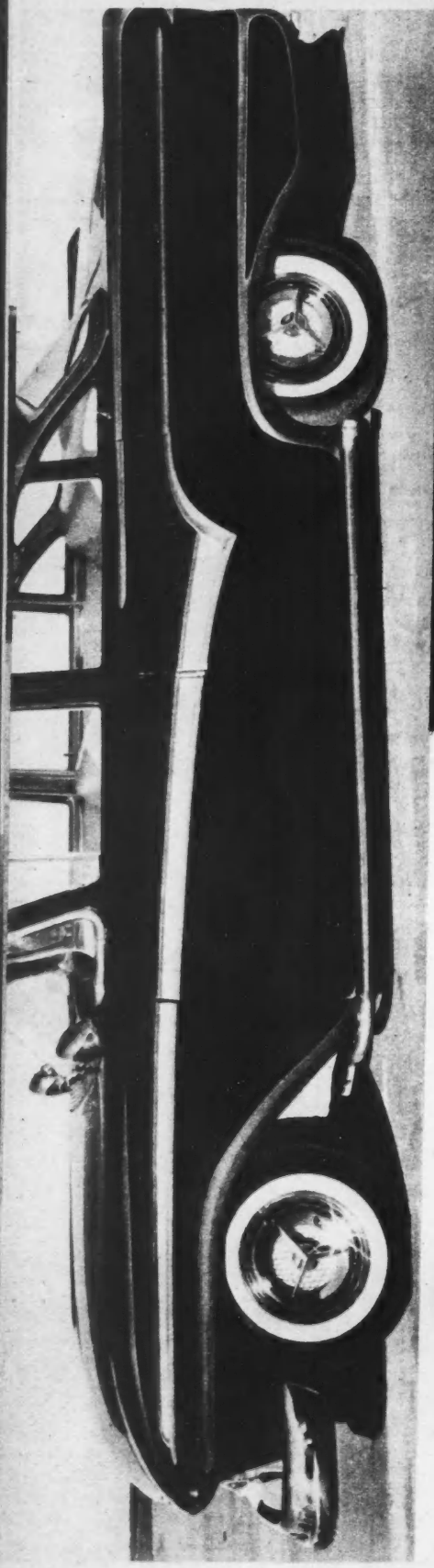


Clever torch work turned Buddy Romero's wrecked stocker into a –

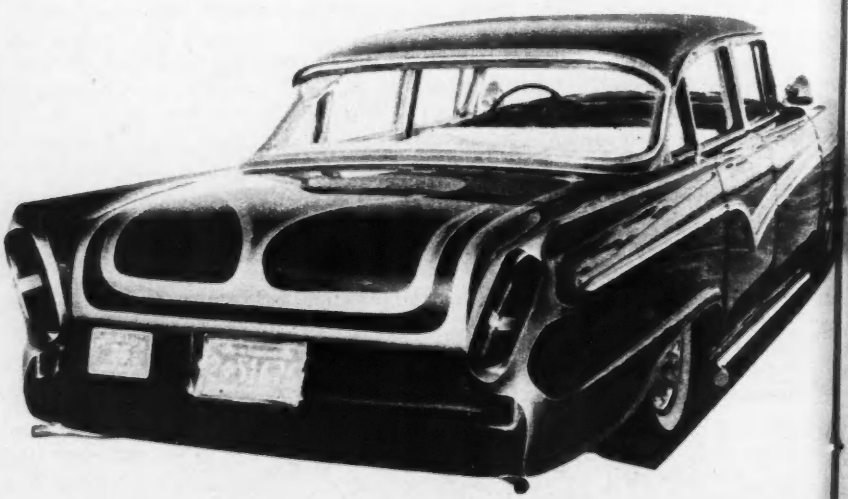
contoured custom

Bodyman responsible for customizing is Bob Sanchez of Albuquerque, New Mexico. Owner Buddy Romero reworked grille and headlights, lowered the '57 Ford. Dual spotlights, side mounted exhaust pipes, Olds wheel discs, accessory items, add appearance.

Photos by Harry Kinney

Midnight Blue metallic lacquer is enhanced by bronze and gold scallops. Four-door is lowered by cut coils and lowering blocks in the rear for total drop of four inches. Doors and trunk are opened by motivation of electric solenoids.

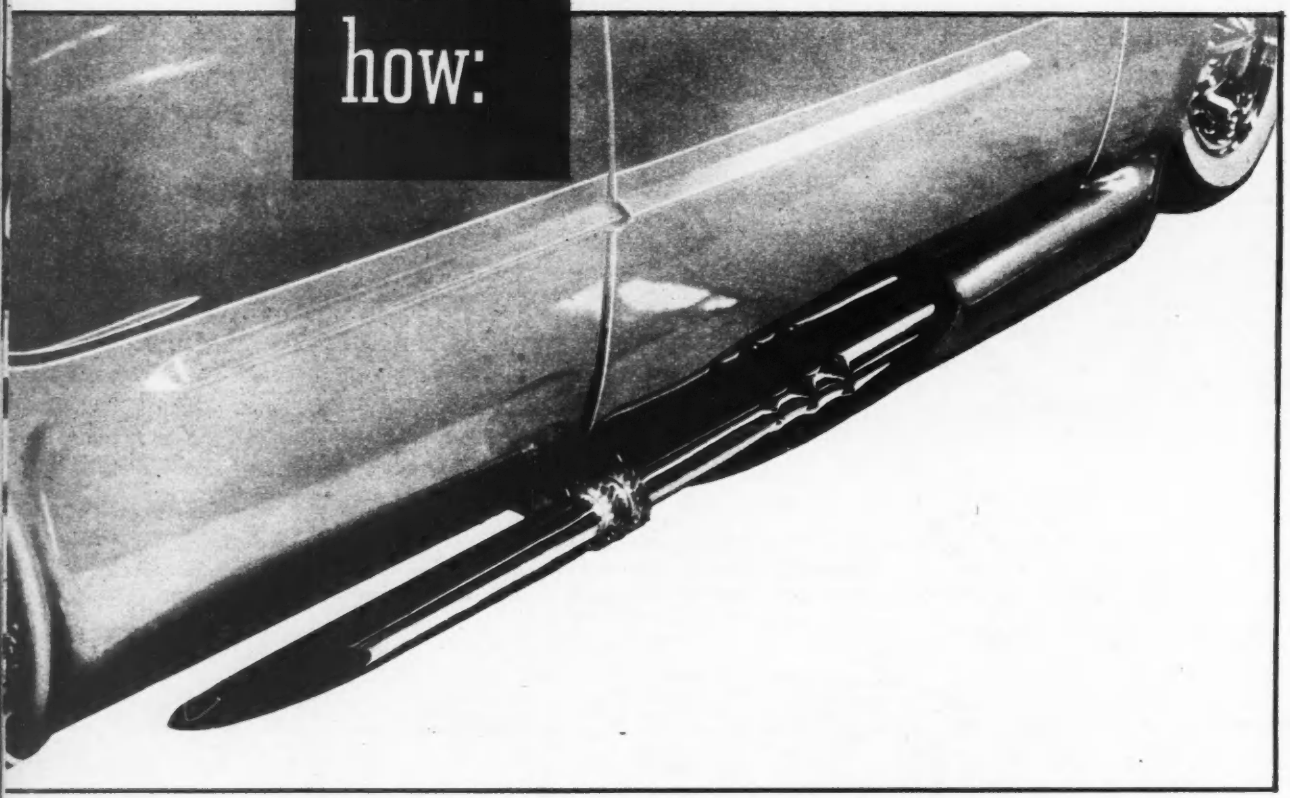
Devoid of ornamentation and bumper protection, the Ford has rolled rear pan. Taillights are quad '56 Cadillac lenses mounted together with dividing chrome strip; mounting is deep in tunneled cavity. Note tailpipes at the pan corners.



Fenders are cut down to lend 'droopy nose' effect. Quad headlights mounted in grille cavity behind plain aluminum plates that border the tubular grille. Bumper is sans guards. Reason for unusual front end is traced to major traffic collision that necessitated a completely new nose, so Romero and Sanchez customized instead of rebuilding to a stock condition.

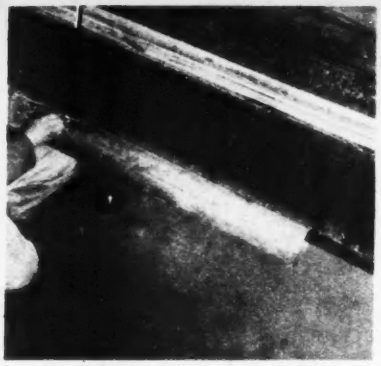
here's how:

Exhaust fairings - the streamlined look for lakes pipes



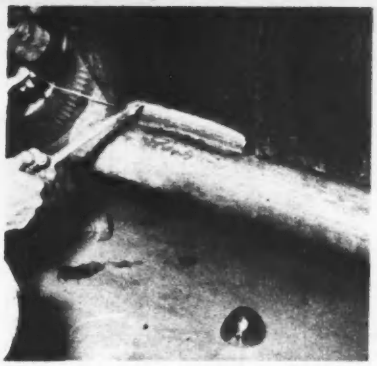
Photos by George Barris

THE FORERUNNER of today's custom exhaust treatments was the unglamourized lakes pipes used on the early roadsters and lakesters that ran on the dry lake beds of California. These so-called lakes pipes were nothing more than open headers. As more rodders began constructing cars that would serve a dual purpose as street and competition machines, they installed headers using a plug or cap with a by-pass for the street muffler. In recent years the trend has been toward street customs and these owners have gone through quite a few exhaust treatments. We've all seen the pipes exiting in front of the rear wheels, the short and long outside chrome pipes with and without caps, single and multiple chrome pipes and more recently the ribbed species of exhausts. The latest, and perhaps the most original treatment has been to create fairings blending into the body and fender panels, making the custom exhaust installation a true part of the body, allowing the customizer to really exploit this wide open field.



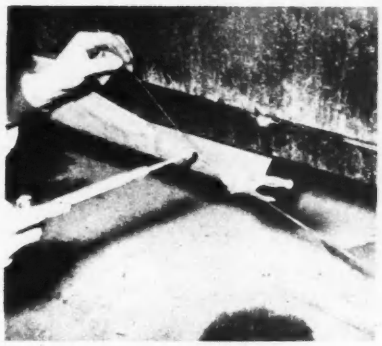
1. 18 ga. cold rolled stock is rolled by metal shop for outer exhaust fairing.

2. Lip is formed at front edge where tube fairs into fender, curve gently.

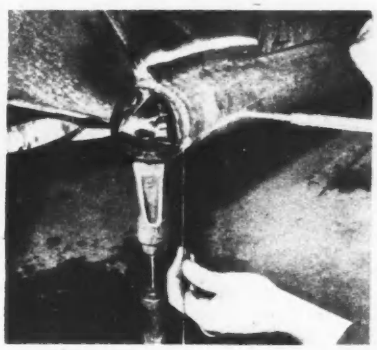


3. Outer tube is welded to fender, tacked to under side, hammer all welds.

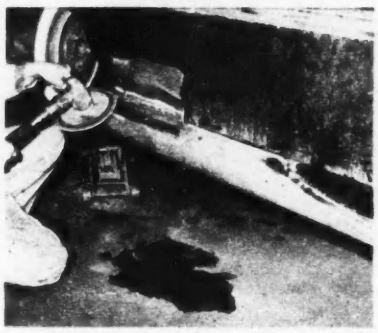
4. With chalk, outline exit shape on rear of fairing, trim off with shears.



5. Weld ¼-inch round rod along edge of new tube opening for clean lines.

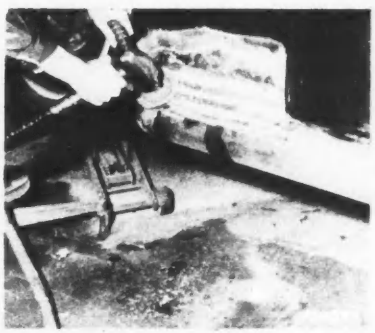


6. Use of Calif. Custom bullet at front provides simple yet effective styling.

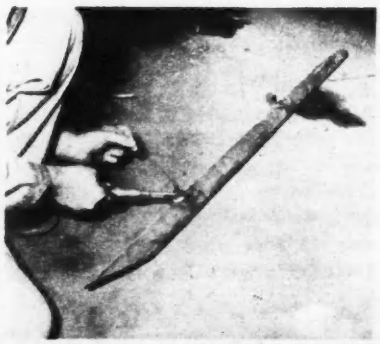


7. Grind welds smooth with 24 closed coat disc, clean, then tin all surfaces.

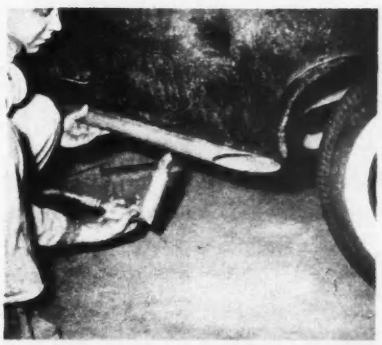
8. Use curved paddle, form lead along the fender-fairing joint, work smoothly.



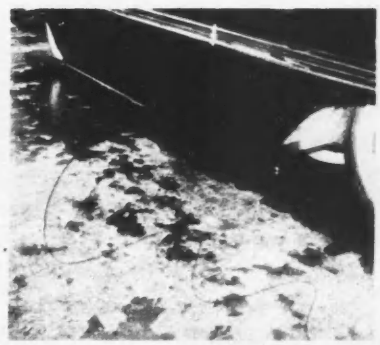
9. Grind curved leaded area with 24 open coat disc, blend fairing to panel.



10. Weld "L" brackets to inner pipe, attach to underside of rocker panel.



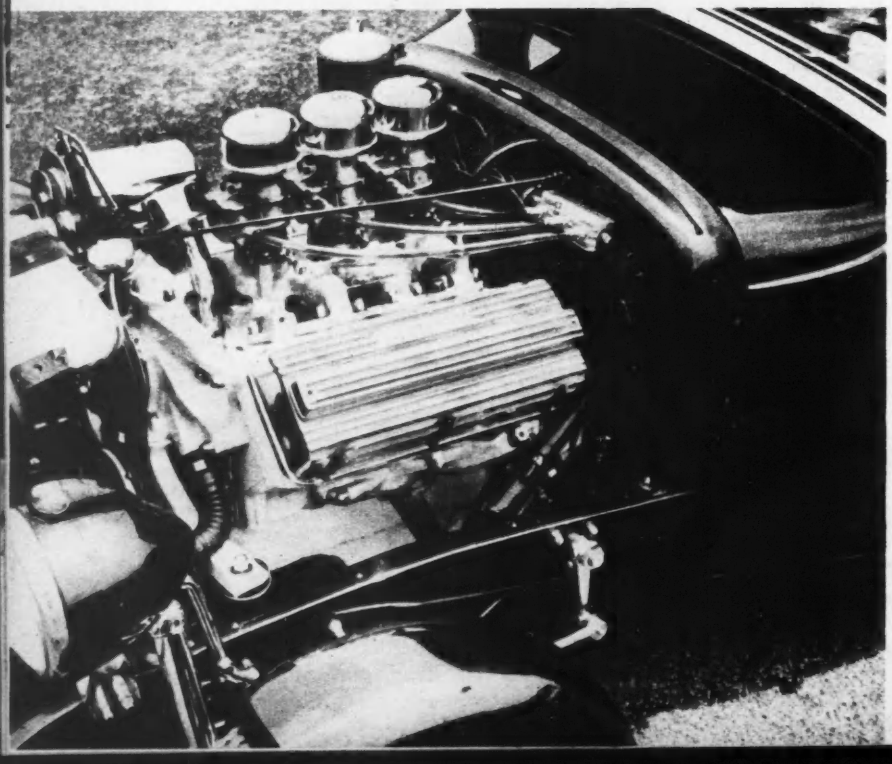
11. After drilling brackets with a ⅛-inch drill, hang pipe, drill the rocker.



12. Sand, prime, finish off new fairing with paint. Chrome exhaust tube.

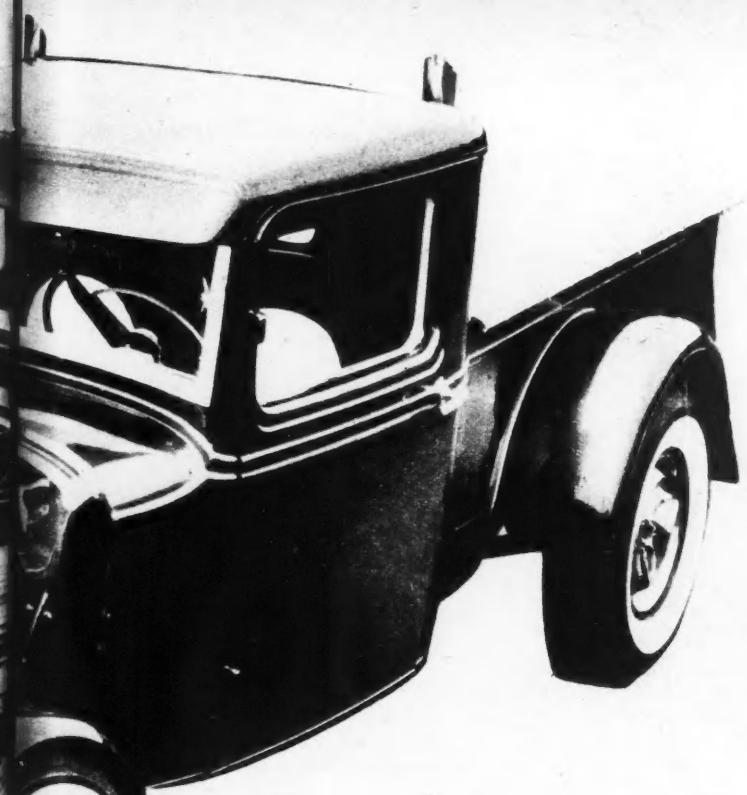
DAPPER DANDY

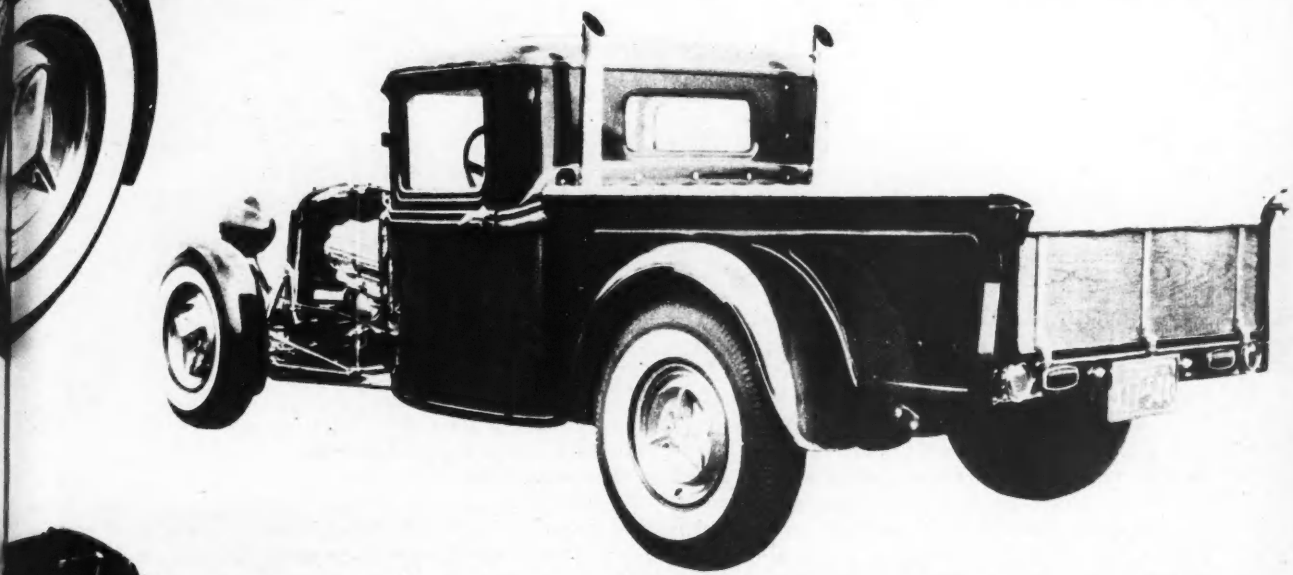
Photos by Woody Higgins

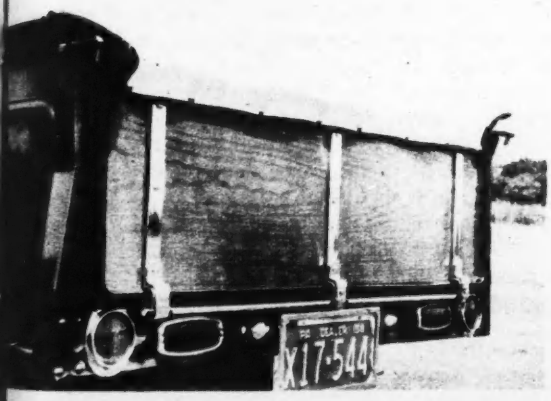


John Brown of Blue Bell, Pennsylvania is owner and builder of this 3½ inch chopped, 7½ inch channeled '34 Ford pickup. Naturally, the Blue Bell belle is blue in color — Meridian lacquer to be exact. Three years' time was consumed in construction of this winner.

Eye catching engine is a '53 Dodge of 241 inch capacity; Offenhauser manifold mounts three Stromberg 97 carbs. Valve covers are enhansive Edmunds product. A chopped Merc flywheel is run, '48 Ford trans drives rear 4:11 gears in the stock '34 Ford differential.







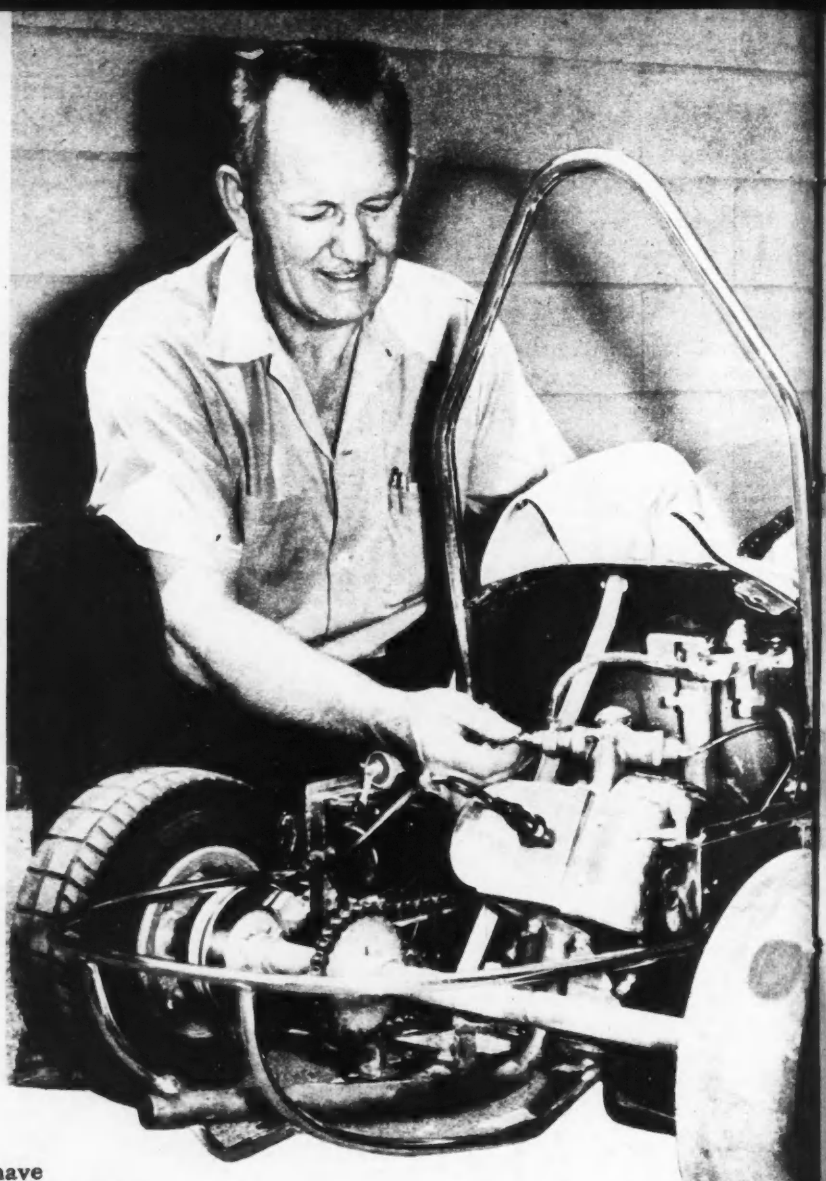
Bench-type seats individually separated by pleated and rolled Naugahyde inserts in white contrasting with black backing. Deep channel job necessitated building of new seats. Upholsterer for rod pickup was Herb Smith, located in Abington, Pennsylvania.

Front fenders are handmade, rear reworked Model 'A'. Taillights are '47 Chevy. Running gear includes '40 Ford hydraulic brakes and spindles, stock steering assembly, Columbus shocks on front and rear, Bell dropped axle, '48 Ford wheels front, Merc rear.

Brown's pickup complies with popular addition of wooden tailgate. This bed door is of polished mahogany plywood. Chromed straps add to appearance; tarp folds-over and snaps to tailgate.

Q. M. CARB CURE

Simple solution provides top performance on straights and turns



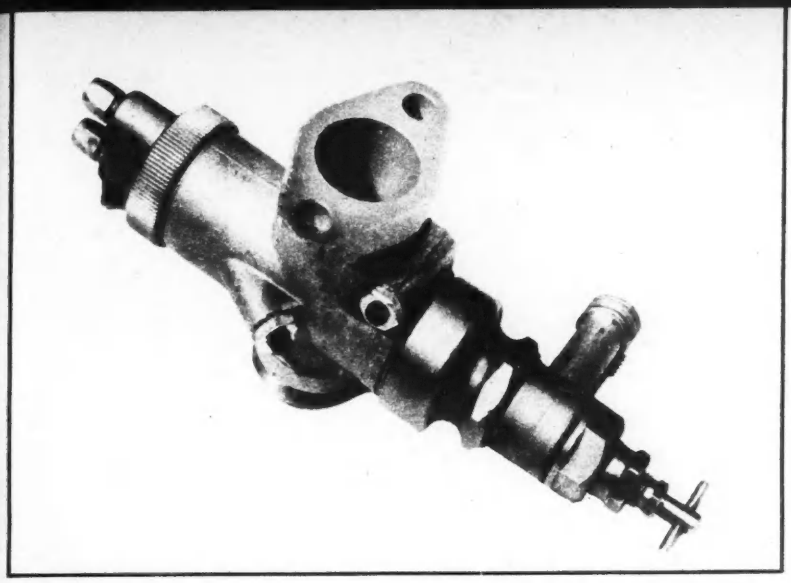
By Don Francisco

STANDARD CARBURETORS have never been much good on track racing cars. This is one of the first things a race car mechanic learns, and usually he learns it the hard way. Zip Grandel learned it the hard way years ago when he had a race car. He could jet the carburetors on the car's four-banger engine to make the car run well in either the turns or on the straightaways but the same jetting wouldn't make the car run well at all points on the track.

When a race car is traveling through a turn at high speeds the fuel level in the bowl of its carburetor is everywhere but where it should be. As the fuel mixture delivered by a carburetor depends on the level of the fuel in the carburetor's bowl, fuel mixtures can be drastically upset by this changing level. It is usually a simple matter with a track racing car that makes all its turns to the left to jet the carburetor so that the engine will run well in the turns but when this is done it isn't at all unusual for the mixture to be either too lean or too rich on the straightaways. But another factor also enters into the carburetion problem. This is vibration.

Vibration originating in an engine can be of such frequencies at different engine speeds that it can cause all sorts of carburetion troubles. For one thing, it can cause the float needle in the carburetor's bowl to remain off its seat, allowing the fuel level in the bowl to become much higher than it should be. For another, it can cause the fuel to dance about in the bowl so that the fuel level becomes higher than it should be even though the float needle is functioning correctly. Still another possible effect is that the fuel in bowl's fuel line and in the bowl can be disturbed to the extent that it can't flow through the line or out of the bowl.

While Zip was unraveling the mysteries of the effect of rapid changes of direction on a carburetor, he was also learning about vibration. His solution to the problem for his four-banger was to convert its carburetors to floatless operation. This was done by removing the float and the needle and seat that controlled the flow of fuel into the carburetor's bowl and replacing the seat with a jet that had an orifice calibrated to allow fuel to flow into



Amal carburetor has been set up for bowl-less operation. Special adjustable main metering jet allows fuel mixtures to be changed without dismantling carburetor.

the bowl just a little faster than the engine could consume it. A device was then fitted to the bowl through which excess fuel could flow from the bowl and be returned to the car's supply tank. The result was a constant fuel level in the bowl regardless of how violently the car was turned or how badly the carburetor vibrated.

Zip once again met his two old friends, fast turns and vibration, when he was in charge of quarter midget development at Solt Engines. The only difference between the problems he faced then and those he had overcome when he had his race car was that the quarter midget engine was a little single-cylinder Continental that vibrated with a violence that would have made his four-banger seem smooth by comparison. He found, too, that the vibration was worse in some chassis than in others. Once again he could make the engines run well on the straightaway *or* in the turns but not on the straightaway *and* in the turns. It became apparent that the only answer was to eliminate the deficiencies of the carburetor float bowl.

Any make or type of carburetor can be used on all but one of the five generally accepted classes of quarter midget engines but the one that has become the most popular is the Amal. Amal carburetors are made in England for engines that range in displacement from tiny single-cylinder chuggers for motorcycles up to full-size multi-cylinder powerplants for automobiles. They differ from carburetors made in the United States in that their throttle valve is a tubular slide rather than a pivoted disc and they have a removable float bowl. Fuel is metered by a main jet that controls the fuel mixture at wide-open throttle. A long tapered needle that moves up and down in another jet controls mixtures under part-throttle conditions. An idle circuit that has an adjusting needle controls the mixture when the throttle valve is in idle position.

When the throttle slide of an Amal carburetor is in its wide-open position, the air passage from the atmosphere to the engine's intake manifold is round and, with the exception of the fuel metering needle that passes through it, free of obstruction to air flow. This is in contrast to the air passages in carburetors of U. S. manufacture that have venturi tubes, and butterfly valves and their shafts cluttering the air passage. The diameter of the air passage through an Amal determines the carburetor's size. At the present time the most popular size for Continental quarter midget engines is ¾-inch; however, carburetors with a ⅞-inch opening are becoming more and more popular on the more highly modified engines and, to some extent, on engines not so highly modified.

Zip found the Amal to be more adaptable than carburetors of conventional construction to floatless operation. Actually, the modification he makes to the Amal can't be called floatless because he eliminates the float bowl as well as the float. Fuel from the car's supply tank flows under gravity or pump pressure directly to the carburetor's main jet.

Special parts required to convert a standard Amal to eliminate the float bowl the way Zip does it are a special fuel metering needle, two 10-32 Allen setscrews ⅜-inch long, two 10-32 hex nuts, and one 6-32 Allen setscrew ⅛-inch long. The special fuel needles are made in two types, one for gasoline and the other for

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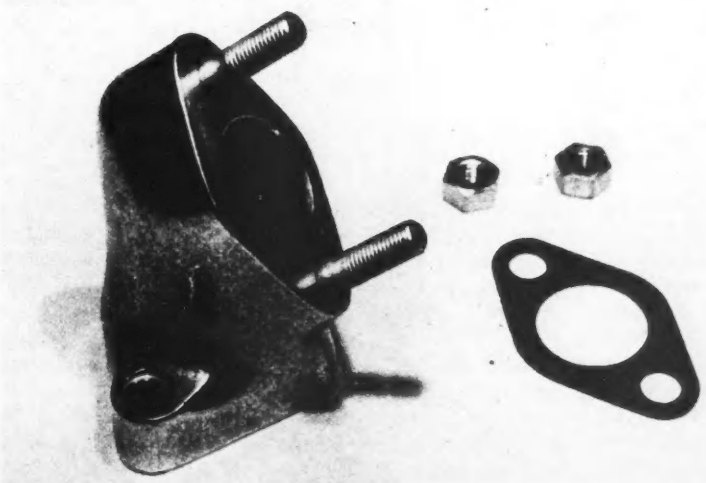
This is Solt intake manifold that Zip recommends for the bowl-less carburetor conversion. It holds the carburetor's throttle body in a near horizontal position.



Q. M. CARB CURE

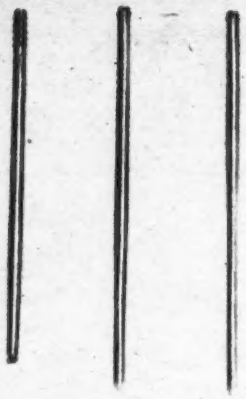
alcohol, by Solt Engines. At the present time they are available either directly from Solt or from Zip, who recently went into the quarter midget and go-cart engine modification business on his own. His immaculate shop is located at 14523 Arminta St., Van Nuys, Calif.

Solt's special fuel needles differ from standard needles in that they are longer, have a pointed lower end that matches the taper in the upper end of Amal main metering jets, and can be fitted to the throttle valve in only one position rather than the three positions possible with stock rods. The alcohol needle is identified by a groove machined around its upper end. Solt's part number for the alky needle is C-106-FA; for the gasoline needle it is C-106-FG. List price for either needle is $1.50.

The purpose of the pointed end of Solt needles is to enable it to seat tightly enough in the upper end of the main metering jet to prevent the flow of fuel through the jet. This action occurs when the throttle valve is completely closed. Because fuel flow is shut off completely, the engine cannot run when the throttle is closed; however, this isn't important because it isn't necessary that a quarter midget engine be able to idle. When the throttle valve is opened enough to allow air to pass through the carburetor to the engine, the needle moves away from the main jet and fuel flows through the jet.

During part-throttle operation, the amount of fuel that can flow into the air stream passing through the carburetor on its way to the engine's cylinder is controlled by the clearance between the tapered portion of the needle and the bore of the jet in which the needle moves. As the needle is pulled farther out of the jet, the clearance between the needle and jet becomes greater because the needle is tapered from its larger diameter at the throttle valve end to its smaller diameter at its pointed end. When the needle reaches a certain position in the jet, which is near the wide-open throttle position, the clearance is so great that the main metering jet rather than the needle controls the fuel flow. In other words, more fuel can pass between the needle and the bore in the needle jet than can pass through the orifice in the main metering jet.

Zip will convert a carburetor for a Solt needle for a fee of $10.00. This price includes the needle, minor parts the carburetor might need to return it to good condition, and labor. If a customer wants to do his own work, Zip will sell him the parts he needs to do the job. Actually, the job is a simple one that any quarter midget owner should be able to do by following these step-by-step directions.



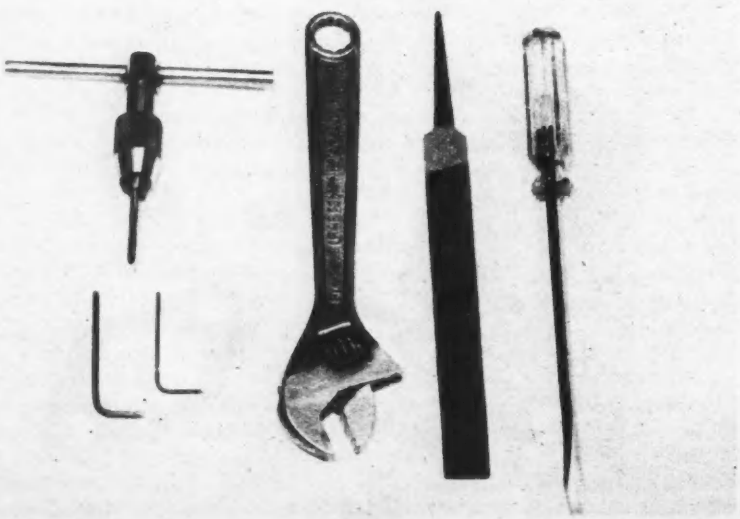
Stock fuel needle at the left is shorter than special Solt needles. Needle for alcohol is at far right, is a bit thinner.

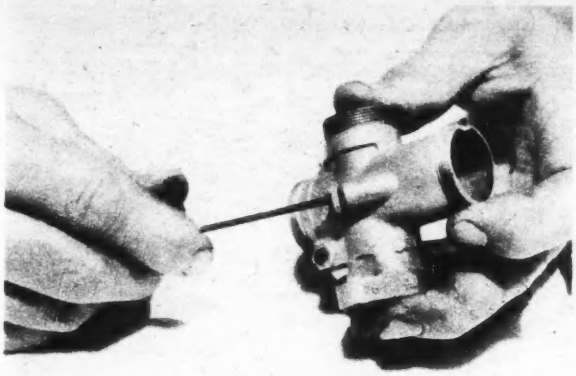
Step one. Completely disassemble the carburetor.

Step two. Plug the threaded holes in the throttle body formerly occupied by the throttle valve stop screw and the idle system air adjusting screw with 10-32 setscrews. Threads in the body are Whitworth, which is an English thread, but the setscrews can be screwed into them without causing them to be damaged. Run approximately half of the length of the setscrews into the threads and then lock them with the hex nuts by tightening the nuts against the carburetor body.

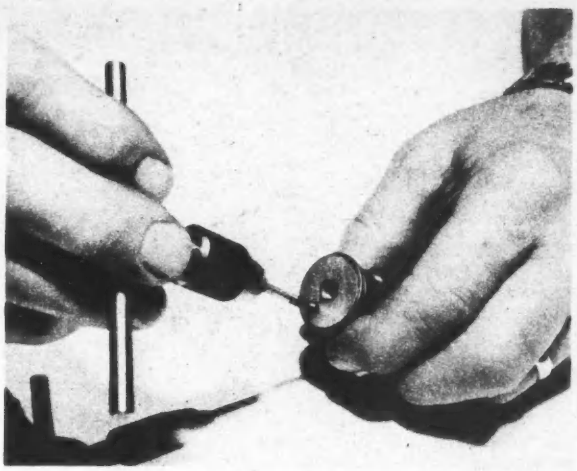
Step three. Thread the idle passage in the bottom of the jet block with a 6-32 tap. The jet block is the brass member that fits inside the throttle body and acts as a guide for the throttle slide. Only four threads (four complete turns of the tap) are needed in the passage. Plug the passage with the Allen setscrew by screwing it into the passage until it bottoms in the threads. The outer end of the plug should be approximately flush with the bottom of the jet block. This modification doesn't hurt the carburetor in any way because the carburetor can be reconverted to normal operation by merely removing the setscrew. If a tap and setscrew of the correct size aren't available, the passage can be

These are all the tools needed to convert Amal carburetor to bowl-less operation.

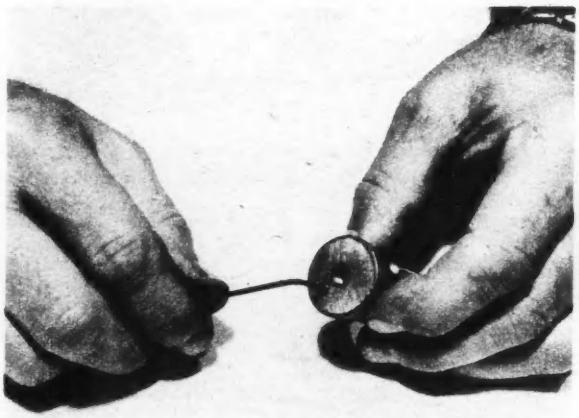




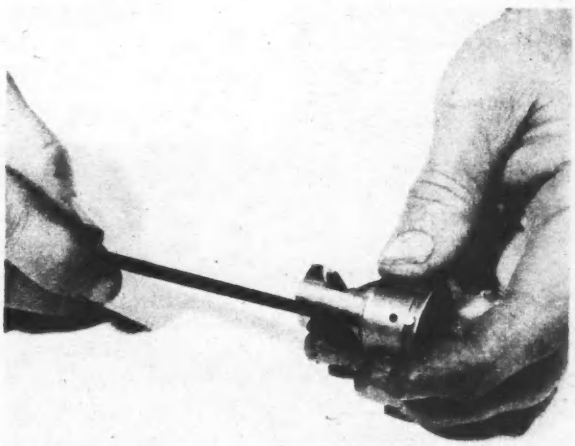
1. A plug must be installed in throttle body in place of stock adjusting screw. Opening for idle mixture is plugged.



2. Existing hole in bottom of the jet block is threaded for setscrew that will block passage. Only four threads needed.



3. Next the setscrew is tightened into threaded opening in jet block. Setscrew must bottom in threads to stay in place.



4. Burrs should be removed from the lower end and guides on the sides of the jet block to insure slide of moving freely.

plugged by covering it with a layer of solder.

Step five. Reassemble the parts into the carburetor throttle body, using the special needle. The needle attaches to the throttle slide in the same manner as the stock needle. Use a small fine-cutting file to remove any burr or rough edges from the throttle valve guides on the jet blocks and the upper end of the block so that the throttle slide will move up and down on the block without sticking. A needle jet that has a bore diameter of .106-inch should be used. This will provide the correct mixtures when used with a Solt needle. The best main jet to start with would be a number 100 for gasoline and a number 220 for alcohol. These should provide mixtures that are on the rich side, a good condition from which to tune for maximum performance.

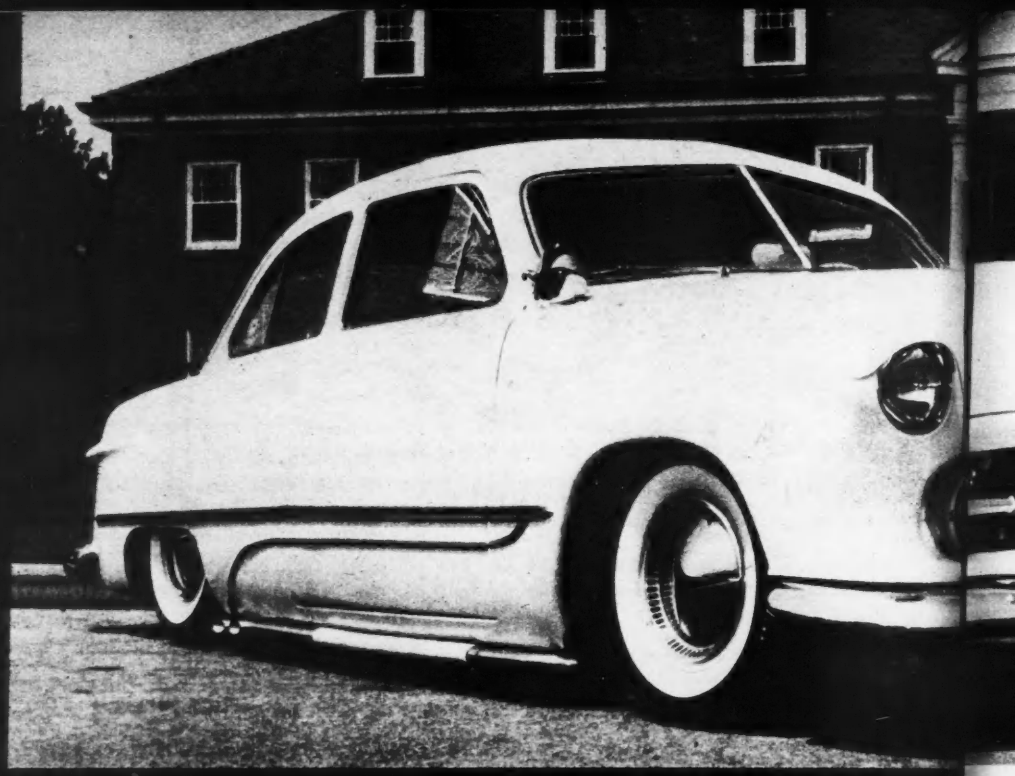
When assembling the throttle slide and its cable assembly, run the cable through the throttle housing cap and the spring and attach it to the slide before compressing the spring. Trying to compress the spring before attaching the cable to the slide usually results in damage to the spring. After the cap has been secured to the throttle body, open the throttle about halfway and let it snap closed. Do this a couple of times. This will match the taper in the upper end of the main jet to the pointed end of the fuel needle.

Fuel line fittings, or "banjo fittings," for Amal carburetors are made in several types. Either of the single-inlet types can be used on a quarter midget carburetor, depending on the fuel to be used. The type that has ridges on its outer surface is made for a hose and clamp connection and has ample capacity for gasoline. Another type has a threaded end and a larger passage. It should be used for alcohol. Either of these banjos can be installed on the throttle body with the nut that was used to clamp the bowl to the body.

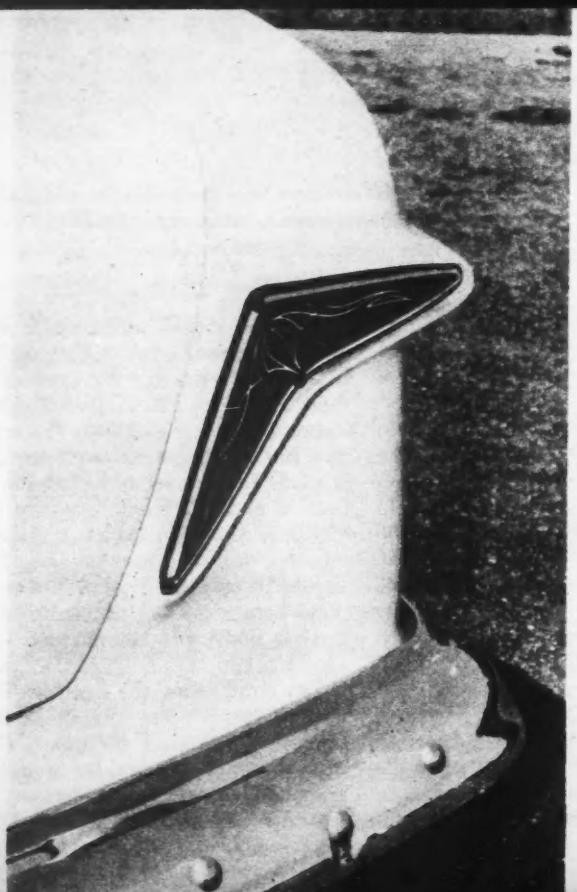
Zip emphasizes the necessity for cleanliness when assembling the carburetor. One reason for this is that everything he does is done in an immaculate manner, and another is that the design of an Amal carbu-

CONTINUED ON PAGE 60

John Pomeroy's gem of a Ford is known as—



MISTY PEARL

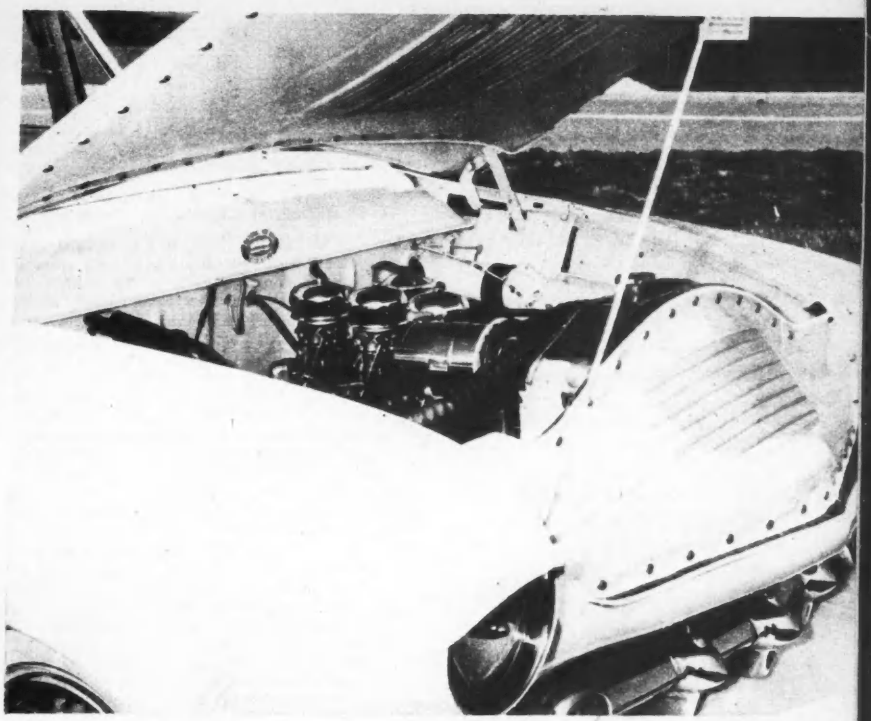


Matching exterior color scheme, dash is lacquered in Pearl White with mild striping. Small panel mounts three S-W instruments. Phone added for show points. Blue and white Naugahyde by Virginia Upholstery, Alexandria, Virginia.

Stock Ford windsplits on sides of fenders lead naturally into '58 Edsel station wagon taillight lenses frenched to the body; lenses are striped. To compensate for taillight installation, trunk lid edges are re-contoured to match.

CAR CRAFT

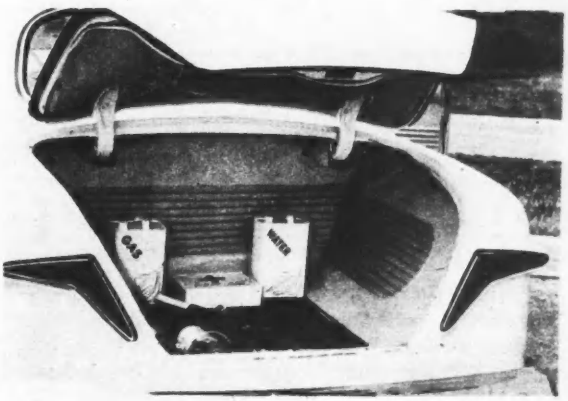
Smooth contours of dual Merc shells with '53 Chev grille, hooded, frenched Lucas headlights with '54 Merc rings, rounded, nosed hood, and '55 Pontiac bumpers tab Pomeroy's Ford a winner.



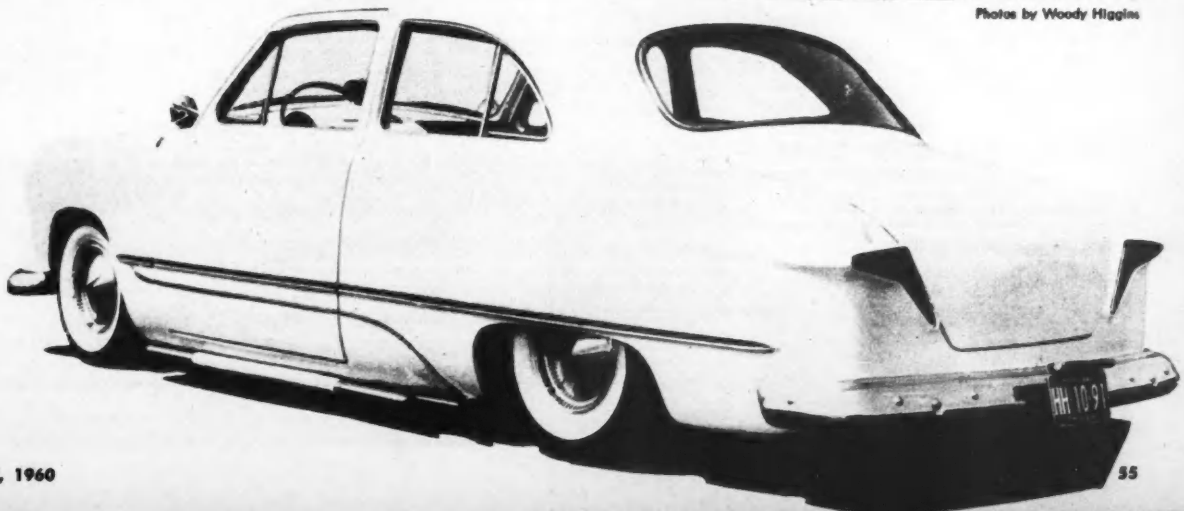
Bored and stroked to 276 cubes, this '53 Mercury engine is equipped with an Isky cam, Offenhauser heads and triple manifold with '97' carbs. Mallory ignition and light Weber flywheel. The '50 Ford transmission has Zephyr gears.

An improvement over stock Ford luggage compartment, trunk area now upholstered in blue and white Naugahyde with the blue sections pleated and rolled. Usual line-up of emergency equipment is included for roadside repairs.

John Pomeroy of Takoma Park, Md. is owner and builder of this classic stanced Ford — low. Ground clearance minimized via dropped spindles, ½" A-frame block, wagon coil springs, C'd frame, dearched springs, 3" block kit.



Photos by Woody Higgins



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MIDWEST REGIONAL CHAMPIONSHIPS

West Liberty, Ohio, will again buzz to the whine of quarter midget engines over the weekend of July 1-2-3 as the Mac-O-Chee Quarter Midget Association stages its first annual Midwest Regional Quarter Midget Championship races. The track will open for practice at 10:00 A.M. Friday, July 1st. Qualifying will commence Saturday, July 2nd, at 10:00 A.M. The first of the racing program will start early Saturday evening. Sunday afternoon will serve as carry-over for remaining races with Sunday afternoon reserved for Championship and special events. The following four divisions will make up the racing program; Stock, Stock Modified, Class 'B', and Open Fuel. Junior (ages 5 to 8) and Senior (9 to 15) classification will prevail in the Stock, Stock Modified, and Class 'B' divisions. Rules and specifications will be those recently initiated by the newly formed National Quarter Midget Association. For further information regarding copies of rules and specs, entry blanks, lodging for out-of-town visitors, write, Mac-O-Chee Association, 406 Miami Street, Urbana, Ohio.

Looking more like the gold-dust twins than actually a two car pose is Mike Houston of Covington, Indiana. Racing stable consists of both a Moss quarter and half midget that appear identical in appearance from camera side. Mike boasts some sixty-four total trophies for last year's racing season with the cars.

DENVER MAKES IT TWO IN A ROW

The Rocky Mountain Quarter Midget Association has just released dates on their proposed Rocky Mountain Nationals to be held over the weekend of August 12-13-14. This will be the weekend directly following the Tulsa Nationals and it is the hopes of the RMQMA that many participants from the West and East coast will also place the initial three day Denver event on their racing calendar taking both meets in during their travels. A large Bar-B-Q victory banquet is planned for all participants directly after the racing meet. An abundance of garage space is available for those entrants who might be arriving early in the week, for car storage, etc. Rules and specifications will be those recently adopted by the newly formed National Quarter Midget Association. Copies will be furnished upon request. Tentative race scheduling calls for practice on Friday while Saturday and Sunday are set aside for actual qualifying and divisional championship events. For further information write, T. A. "Tex" Cox—Secretary RMQMA, 3854 Federal Boulevard, Denver 11, Colorado.

CALIFORNIA CHAMPIONSHIPS

Active Redwood Quarter Midgets of Redwood City, California, will host the second annual California Championships July 2-3-4

at their very picturesque race site in the heart of the San Francisco Golden Gate bay area. The Redwood asphalt oval features thirty-two foot width throughout. Championship racing divisions will be as follows; Stock, Modified Stock, 'B' Modified, Open Gas, Open Fuel. Junior, ages four to eight, and senior, ages nine to fifteen, classification will be employed in the following divisions; Stock, Modified Stock. If ten or more juniors sign in for the 'B' Modified division there will be a full junior racing event, if not then only a combined junior senior event will be scheduled. Rules and specifications will be those recently initiated by the new National Quarter Midget Association. All fuel will be furnished at meet. For further information and entry blanks, write: Redwood Quarter Midgets, 452 Larkspur Drive, Palo Alto, California.

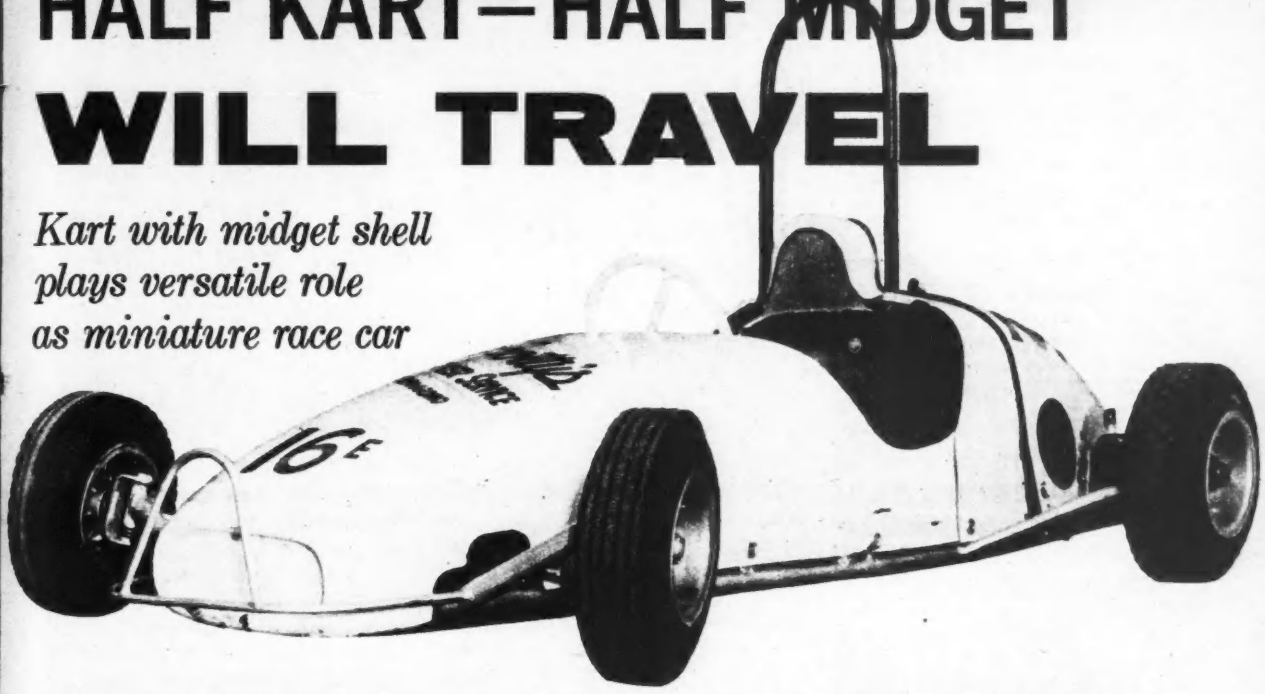
TRACK LISTINGS

LANGHORNE, PENNSYLVANIA — Penndel [illegible] Midget Racing Club, Inc.

TRACK: oiled clay surface. RACE DATE: Saturday evenings with special events scheduled for 'Championships'. QUALIFYING: 7:30 P.M. GENERAL RULES AND SPECIFICATIONS: All cars must be equipped with the following safety features: approved roll bar, safety seat belt, bumper front and rear, positive one-wheel brakes, outside ignition switch, fully extended metal firewall between engine room and cockpit, cut-away belly pan exposing the underneath side of the engine compartment. DRIVER: approved crash helmet, goggles, leather gloves and long sleeved apparel. ENGINE SPECIFICATIONS: 'B' Modified only (drivers five to fifteen) 7.5 cubic inches, no alterations to stock camshaft, stroking not permitted. TRACK LOCATION: On infield of the Langhorne Speedway located on U.S. Route #1.

HALF KART—HALF MIDGET
WILL TRAVEL

Kart with midget shell plays versatile role as miniature race car

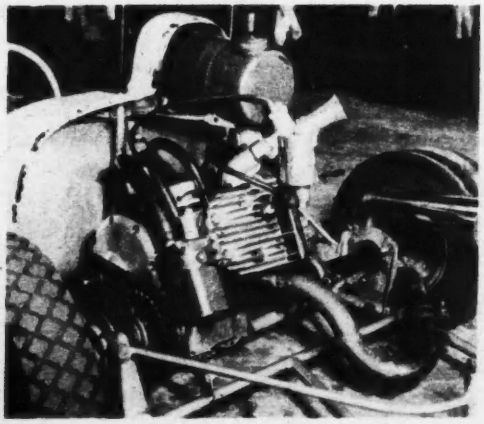


Sectioned Viking Craft ¼ Midget body hides the small but sturdy kart chassis of the Scotty's Muffler Service car. Built up in seven nights, chassis and body cost but $150, proving mini-car racing need not be too expensive at all.

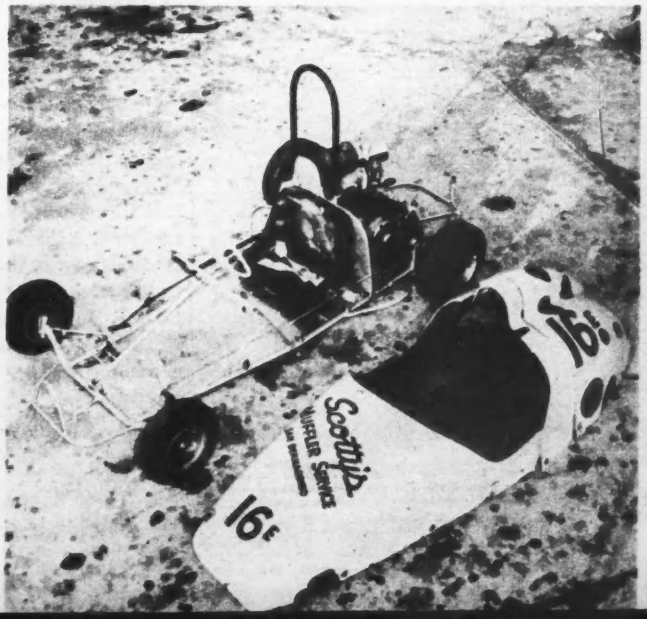
At left, Billy Scott sits proudly at the wheel of low slung speedster, quite a departure from usual midget design.

BELOW LEFT • Modified Continental 'A' engine runs Scotty 7.5:1 head, ignition, J. E. piston, big valves, twin sprockets.

BELOW • Fiberglass body removed fast, 10 Dzus fasteners used. Car weighs 125 pounds, runs mag wheels, single slick.



Photos by Bud Long



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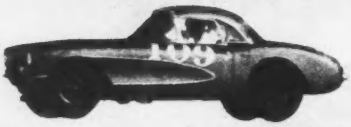

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events and the class "A" Championship.

Queried on his driving technique, Jim related "I just try to move through the turns fast and smooth, without braking hard in the corners if at all possible. This keeps my rpm's up. It actually can't be called a style, it's just the way I drive. All karts and courses are different, each must be driven in the manner that will give the best results, namely winning." Having watched Yamane drive in competition, I feel that he has an inherent knack for kart racing, and his consistent wins at tracks all over the southwest seems to bear this out. Yamane currently holds the course record at Butler Speedway with a 27.55 second E. T. and at Go Kart Raceway with an E. T. of 39.4 seconds. These records were set with his present class 'B' machine. He formerly held records at a couple of other tracks with his class 'A' karts.

When Yamane first switched to the twin MC-10's the tuning difficulties that go hand in hand with multi-engined machines plagued him as it has others. Tuning his engines on the course and not in the pits is his preference. The mills are modified similar to many others but perhaps just a bit more super-tuned in some respects. Some competitors no doubt feel that he has access to otherwise unknown speed secrets enabling him to produce bench-job engines due to his position in the McCulloch plant. To this Jim replied "McCulloch is in the chain saw business and this is their main interest. They do produce kart engines but only as a sideline. Their basic product, the chain saw, is built for dependability and not to discover how much H. P. they will give at a certain rpm. Furthermore all of my engines are built at my North Hollywood home, as are my cars."

Once again I might mention the fact that Jim "borrowed" an engine at the Go Kart Nationals in 1959 and still won the Class "A" Championship, attesting to the fact that big mills aren't everything.

He seems very content to stick with the smaller displacement engines, foregoing the urge to run three MC-10's or a motorcycle engine. All of his recent wins have been with the twin powered kart so perhaps this is enough. Offering his opinion on triple-engined karts, Yamane feels that tuning problems are more than tripled, and the resulting vibration from this trio is hard on kart chassis, necessitating a heavier than normal frame to withstand the torque. Welds take a brutal beating.

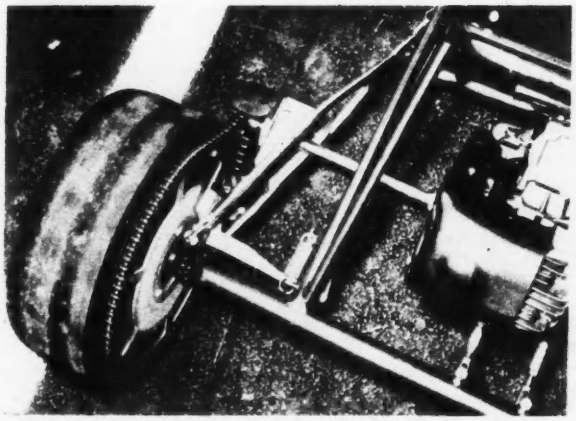
Strange as it may seem, Yamane does not consider his victories as something spectacular. He takes pride in his past accomplishments but one feels that he would much rather have the news of his winnings remain at the tracks.

TUBULAR TIGER

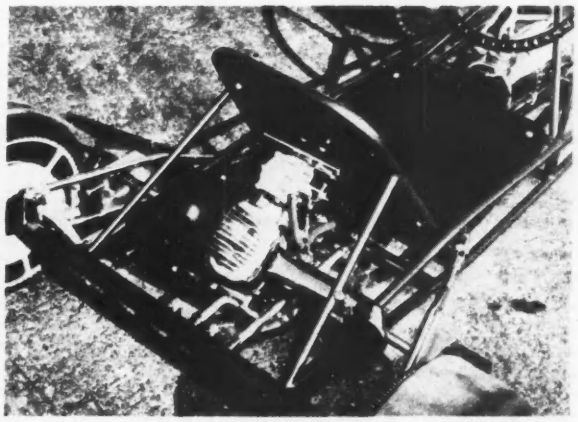
Multi-tube featherweight features drawing board detail for kart competiton

Paul Grosso, Jr., Van Nuys, Calif., designed his own space-framed kart using ⅝-inch chrome moly tubing. Lightweight racer is unit constructed, well braced.

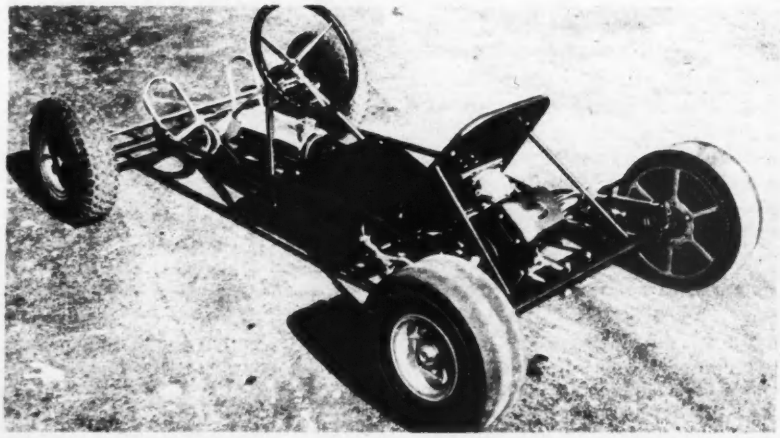
Photos by Bud Lang



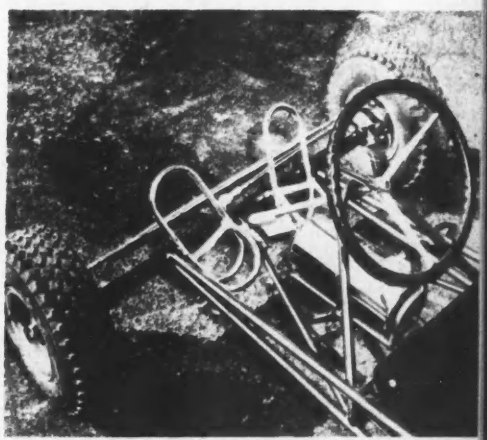
Lightened rear sprocket serves as disc brake. Mechanically operated pad furnishes 3 sq. in. surface, has spring return.



MC-10 engine straddles adjustable tube cradle mount, drives twin jack shafts, sprockets mounted on dead axle.



Paul's friend Eddie Miller Jr., did all of flawless welding on kart. The frame is only 13 pounds in weight. Team built kart during 6 months of their spare time.



Front axle is straight design, pedals made to fit shoes. Seat is of fiberglass.

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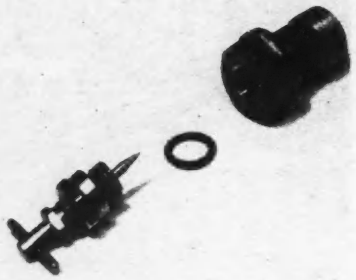


A definite improvement for quarter midget racing is this special main metering jet adjustment. It screws into a drilled and threaded fuel line nut.

retor makes no allowance for foreign material between its throttle slide and the bore in which the slide moves. So keep the carburetor parts and tools used for the job clean.

When installing a carburetor converted in this manner on an engine, Zip uses a Solt C-106-3 intake manifold that faces forward and holds the throttle body in a horizontal position. This position simplified fuel line and throttle cable installations by keeping the ends of the carburetor low in relation to the engine and the car's tail. If a gravity fuel system is used, the bottom of the fuel tank should be above the needle jet. There isn't enough room in the tail of a quarter midget to allow the tank to be placed so high that the fuel pressure would be too great. If a pressure fuel system is to be used, a regulator adjusted to approximately one-half pound should be placed between the pressure source and the carburetor.

When tuning the engine for maximum performance, mixture ratios for wide-open throttle conditions are made richer or leaner by installing main metering jets that have different orifice diameters. Mixtures for part-throttle conditions can be made richer or leaner by installing different needle jets, which are available in different sizes, or by changing the throttle slide. Slides differ by the amount of cutaway they have on their atmospheric side. The greater the cutaway, the leaner the mixture. Slides are numbered according to the amount of cutaway they have. The smaller the number, the richer the mixture. Zip prefers to change part-throttle mixture ratios by changing the throttle slide instead of the needle jet.

A mixture control that can be easily installed on one of these carburetors to simplify full-throttle tuning is made by Solt and is available from Zip. This adjustment consists of an adjustable needle that controls the amount of fuel that can flow through the carburetor's main metering jet. It can be adjusted from outside the carburetor. It is installed by drilling and threading a hole in the nut that secures the fuel line banjo

These are just two of the many types of fuel line banjos used on Amal carburetors. The one on right is for gas, one on left should be used for alcohol.

to the bottom of the carburetor. A number 240 main jet is used with the adjustment. This jet gives the adjustment ample range for both gasoline and alcohol.

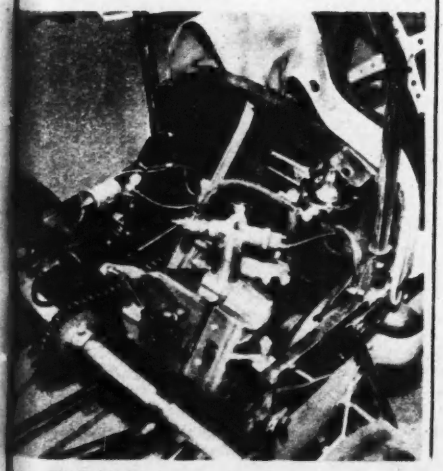
One advantage of the modified carburetor that drivers like is that a car fitted with one of them loses speed faster when the throttle is lifted. This reduces the amount of braking required. The reason for this is that both fuel flow and air flow to the engine are shut off completely when the throttle is closed. The en-

gine can not create any torque to help rotate its crankshaft, as can one that is fitted with a conventional carburetor and receives fuel and air from the carburetor's idle circuit when the throttle is closed.

Another advantage of the modification is that it enables a carburetor that has a ⅞-inch air passage to be used on most engines that require a ¾-inch conventional carburetor. This is because fuel flow from the needle jet of a converted carburetor is not dependent on the velocity of the air through the carburetor as it is in a conventional carburetor. Efficient carburetion is obtained even though the velocity of the air is lower than through a ¾-incher. The advantage of a larger carburetor is that its greater air flow capacity allows the engine to breathe more deeply than it could with a smaller carburetor. This enables the engine to develop greater torque and power outputs.

If your quarter midget isn't running the way you think it should in the turns or on the straightaways and you think the trouble is in its carburetor, give the Grandel modification a try. There isn't any need for you to learn the hard way about carburetor deficiencies and how to cure them, as others have. For the amount of money involved, you can't go wrong, and your car might become a more frequent first receiver of the checkered flag.

A completed installation on a car converted to bowl-less operation. Throttle cable, fuel line routing and angle of carburetor on manifold shown here.



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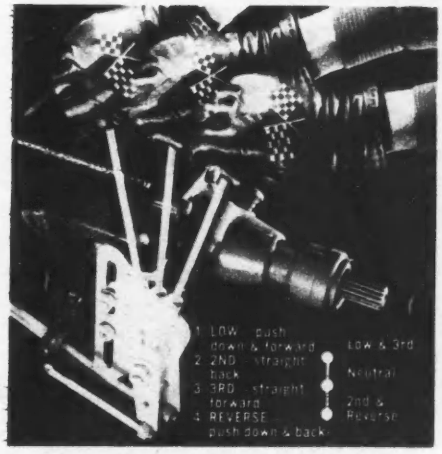

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CHEVY DUET

Dear George:

I have been thinking about installing '56 Dodge taillights in my '55 Chevy hardtop. Do you think it can be done without extensive modifications?

It's probably a little out of your line, but what would it cost to upholster the interior of my Chevy in red and white Naugahyde, pleated and rolled, including the floorboard rugs and dash?

— Ronnie Wiseman
El Paso, Texas

Dear George:

I have a '55 Chevy but not the slightest idea on how to customize it. I want to install new taillights, grille, bumpers, and paint it in a real sharp color. What are your suggestions for the best customizing on my car?

— John Strube
Kingman, Kansas

First things first, gentlemen. The use of the Dodge taillights will involve a large amount of work because you'll have to modify the taillight housing and the fender, plus fitting of the taillight. I suggest you employ the taillight from a '55 Pontiac station wagon. It's sharp.

The interior that you have listed, Ronnie, will probably run you in the area of $250 to $300. The price will depend largely upon the grade of Naugahyde that you use and the pattern that you choose. The more complex, the more expensive.

On your Chevy, John, use the plastic bolt-on lenses available at Lee Plastics Company in Detroit. They are neat replacement lenses and for further custom appeal, add three small chromed bullets to the plastic surface. These can be found at California Custom Accessories.

The grille problem can be solved by adding a stainless steel floating grille available, again, at Cal Custom. This is the simplest and easiest to install and will probably cost you about $20. For bumpers, I think you should install the '55 Pontiac split bumpers both in the front and rear. As with all of these installations, the work is slight.

I have found that a light or silver blue is very enhansive to the Chevs. Why not try late Cadillac Bahama Blue? I'm sure you'll be pleased with the results.

'54 FORD ROUND-UP

Dear George:

I have a '54 Ford and I am considering the installation of either a '54 DeSoto or a '56 Ford grille. Which would be the easiest to adapt to the present grille cavity?

Will a pair of '57 Mercury skirts fit my Ford four-door without too much trouble?

— Leon Fennessy
Houston, Texas

Dear George:

I am customizing my '54 Ford and have been confronted with a few problems. I want to use '55 Pontiac bumpers on the rear. Will they fit? I'm at a complete loss for side trim; do you have any suggestions for a sharp assembly that won't be too far-out? Finally, how can I adapt Oldsmobile taillight lenses?

— Bill Balkom
Holbrook, Mass.

Dear George:

My bank account is running thin, so for custom work on my '54 Ford I don't desire to spend much money. Your advice will help me out on my custom questions. First, how do I install Oldsmobile taillights? Secondly, what will the tariff be on a louvered hood? And finally, what is the best way to install the Mercury chrome trim teeth to the fender scoops? I enjoy your column. Keep up the good work.

— Bob Johnston
Quincy, Mass.

In answer to these three queries, we'll start with the front of the car first, and satisfy the grille assembly question for reader Fennessy. For a custom-appearing grille, use the DeSoto grille unit. It is the easiest by far, as there are several minute changes in the cavity, etc. of the '54 and the '56 Ford models. Both of these installations are extremely popular, at least out here on the coast and in semi-customs. The DeSoto grille has the advantage of putting up a good front and lending a definite custom appeal to the forward portion of the car. The Ford grille appears to be 'stuck-on' when it is installed in the '54 Ford such as your car.

Reader Johnston wants a louvered hood and he can have it for 15¢ a louver. The total price for the completed job will depend only upon how many louvers you want stamped. The only other problem you'll run into is where do they have a louvering press in Massachusetts? There aren't many even in the Southern California area.

Side trim is always a very important item of consideration and choice for a custom. I've seen so many nice, clean customs that are ruined by the wrong choice in side trim chrome. So often, custom builders choose the latest fad rather than the trim that does the most for their car. Use judgment if you are searching for side chrome. For the '54 Ford, I suggest '59 Dodge chrome. Used in the stock length double-piece it will be okay, but if it is cut and trimmed to fit the Ford's sides, it should be real jazzy as well as conforming with the car's over-all design.

Attaching Mercury chrome teeth is simple. First, align the teeth in the position you want them to be. Then, mark the mounting holes and drill. The last step is simply bolting them to the fender from behind.

For a neat fit with the '57 Mercury skirts, you'll have to cut and trim until you achieve the right contours. I think it is too much work, but if you really want them, your best move is to take them to a good body shop. There is probably too much finish trimming and one slip here or there will mean a sloppy job.

Reader Balkom has a good idea centered around the Pontiac split bumpers for the rear. They also look extremely nice up front. They have been used before with much success. As with all installations of the Pontiac bumpers, it entails quite a bit of metal trimming and probably some metal adding to fill void areas. This might be too much for you at home, but if you are experienced or have access to a torch, go to it.

The two that asked for taillight suggestions seem to agree that the Oldsmobile bullet-shaped lenses are the best answer. If you want to install the stock Olds lenses, here's what you do: Fit the Oldsmobile lens over the stock Ford lights. Mark the attachment holes with a scribe or nail that will scratch the plastic on the stock taillights. Drill the holes using the proper size drill. Be careful with this step as you're drilling through plastic and you're liable to crack it if you apply too much pressure or are careless in your drilling procedure. When the holes are drilled, match the lenses to assure proper positioning. Then, use a hacksaw to remove the center reflector/knob on the stock Ford lights. The last step is simple: bolt the new Oldsmobile taillight lenses on; you're all set with a sharp modification. If you find you like the "Rocket" styled lenses that are offered by J. C. Whitney and Company, one of our advertisers, use them. They are in a kit form and have full instructions for installation. The price is very inexpensive and you'll find they are enhancing to the Ford.

PLASTIC FOR PONTIAC

Dear George:

As with all of your readers, I am in the process of customizing my car. It is a '57 Pontiac and I'm stumped for a grille. I want to install a '55 Pontiac assembly, but how much time and trouble will this prove to be? If you have any suggestions, I would appreciate reading them as I don't know what I can do?

— Harvey Belling
Milwaukee, Wisc.

If I were you, I wouldn't even consider the '55 grille for your '57. It's a heck of a lot of work and it doesn't prove a thing other than you had to go back two years to fill your grille cavity needs. I suggest you do one or the other of these two suggestions: Install a tubular bar grille. Sure, this sounds like it will place you in the same category with every other custom owner who has installed a tube bar grille, but stop and think. How many '57 Pontiacs can you think of with this form of grille? Not many. And there are probably even less in your city. I think this is your answer because the Pontiac's grille shell is ideally suited for this type of grille. But, if you don't want it, why not whip up a neat plastic type grille? Go down to the local hardware or plastic supply house and purchase some interestingly shaped plastic objects, arrange them in an attractive pattern and mount

them on flat bar stock. Install this in your grille cavity. This will give your Pontiac an individual appeal and it will not demand any metalwork.

BE ORIGINAL

Dear George:

I have a '55 Crown Victoria Ford on which I plan to do some custom work. I plan to nose, deck and remove the door handles and other unnecessary chrome.

I would like your advice concerning a custom grille. I have thought about a great many different ones: '55 Merc, '54 Chevy, '58 Buick, '55 DeSoto. What grille would be your choice?

My second question is about a sharp taillight change. Probably the easiest would be the '55 Merc station wagon assembly. Would you prefer any other taillight? The last question is where is the best place to locate the electric solenoid door buttons?

— Jerry Head
Sidney, Nebraska

For the grille modifications, I wouldn't choose any of your suggested assemblies. The grilles you've suggested are all too common and I feel that any one of them would be defeating the custom purpose. Use the center section pirated from a '59 Mercury grille. It's very attractive, easy to install, and best of all, it's original.

The same adherence to conformity shows up in the taillight choice. Yes, the easiest is the Merc light, but they're so common they look almost stock. For something different, use plain plastic lenses with a horizontal white plastic cross-bar section on each lens. This will give a different look.

For solenoid button location, your best bet with the '55 Ford is to install them somewhere in the side trim.

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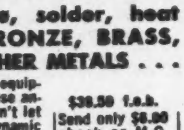

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WHAT'S YOUR PROBLEM?

By Don Francisco

TOO RICH TO POP

Dear Don:

I have a '57 Plymouth Fury on which I have installed an Edelbrock (P-600) three-carburetor intake manifold and three new '56 Ford Holley carburetors. It runs very well and I am more than satisfied with the performance.

I have a problem with the carburetors when the engine is shut off when it is hot. The engine will restart immediately but if I wait ten or fifteen minutes it will be flooded. By cranking the engine twenty or thirty times with the throttle wide open it will finally start. I installed a fuel pressure regulator and checked the float levels on all the carburetors. I still have the same problem.

What can I do to remedy this situation?

— John E. Albert
Omaha, Nebraska

From the symptoms you describe I would say that the float needle in one or more of your carburetors is leaking. What happens is this: When you stop the engine, pressure in the fuel pump continues to force fuel past the needle that isn't seating correctly and into the float bowl. The level of the fuel in the bowl continues to rise until the fuel can flow out of the main discharge nozzle in the carburetor's throat. This fuel runs into the intake manifold and floods the engine.

You should be able to determine which needle is leaking by looking into the carburetor throats. It may take a few minutes for the fuel level to rise to the point to where fuel will flow from the main nozzle. The best thing to do with a leaky needle and seat assembly is replace it with a new one.

Another possibility is that one of the carburetors has a crack or other flaw that allows fuel from the bowl to flow into its throat. This has happened but compared to leaking needles it is a rare occurence.

MODERN INEFFICIENCY

Dear Don:

I have a 1956 Mercury that has a factory-installed pushbutton lubrication system. This thing has given me nothing but trouble. I try to follow the factory recommendation of pushing the button every fifty miles but sometimes I forget. The worst part, though, is that as far as I can tell some of the joints the thing is supposed to lubricate aren't getting any grease.

What is the best thing to do with one of these gadgets?

— Harry Monroe
Clinton, Iowa

Centralized lubrication systems, as they are called by the people who make them, are a good idea when they work but the trouble is that they don't work as well as they should. As far as I'm concerned the best thing to do with one of them is to disconnect it so that the joints in the car that require lubrication can be lubricated properly with an old-fashioned high-pressure lube gun wielded by a service station attendant. It's possible for a station attendant to miss a fitting now and then but he won't miss the same fitting every time he lubes the car, as a defective centralized lubricator will.

Lube fittings installed in the joints that require lubrication are the same for use with a centralized lubricator as they are for normal high-pressure gun lubrication. All that is necessary to revert to the old-fashioned method is to separate the connectors on the ends of the centralized lubricator's tubes from the fittings. Use a pair of pliers to do this and twist the connectors while pulling on them.

The entire lubricator setup can be removed from the car if one wishes, but a simpler method is to merely tape the connectors to the member that supports their tube to keep them out of the way of the lube fittings in the joints and prevent their becoming entangled in moving parts.

THERE'S A REASON

Dear Don:

I plan to reline the brakes on my car in the near future but before I do there is something I'd like to ask you about them.

The brake linings now on my car are the ones that were installed on it at the factory. They have a groove about a ½-inch wide through their middle that runs the full length of the lining. It seems to me that this is quite a waste of lining area. When I install new lining wouldn't it be better if I used lining that doesn't have this groove?

— Eric Clanton
Springfield, Mo.

Your car's brakes will work much better after you reline them if you use grooved lining than it will if you use plain lining.

The purposes of grooves such as you describe in brake linings are to equalize pressure between the linings and the brake drums and equalize wear across the face of the linings. They do these by eliminating the high-pressure area that would exist in the portion of the lining

that is directly above the web on the brake shoes. Force from the hydraulic cylinders that apply the brakes is transmitted to the shoes and the linings by these webs.

If the shoes were perfectly rigid, pressure would be equal across the face of the linings; however, it is impractical to give the shoes this much rigidity because of the high pressures they must transmit. The pressure variation from the center of a shoe to the shoe's outside edges increases as the width of the shoe increases.

COMING EVENTS

SHOWS

Denver, Colo.—Apr. 9-10; Tri State Auto Show; Coliseum; Sabres of Denver.
Clearwater, Fla.—Apr. 9-10—3rd Rod & Custom Show; Auditorium; Block Busters Club.
Lombard, Ill.—Aug. 7; Torque A Rama: Jewel Parking Lot; Torque A Teers Club.
Canton, Ill.—Apr. 23-24; 4th Annual Auto Show; 240 N. Main; Canton Gearjammers.
Chicago, Ill.—June 19; 5th Motorcade; Gompers Park, Igniters Club.
St. Louis, Mo.—Nov. 10-11-12; Mid-West Autorama; St. Louis Arena; Mo.-Ill. Timing Assn.
Binghamton, N.Y.—May 6-7-8; 3rd Empire State Show; West End Armory; Reciprocators Club.
Syracuse, N.Y.—Apr. 30, May 1; West Jefferson St. Armory; Road Aces.
Canton, Ohio—Apr. 1-17; Autorama; Memorial Auditorium; Floorshifters & Others Clubs.
Fostoria, Ohio—Apr. 8-10; 4th Rod & Custom Show; Nye Implement Bldg.; Millmakers, Inc.
Mansfield, Ohio—Apr. 23-24; Coliseum; Flying Angels Club.
Oklahoma City, Okla.—April 23-24; 1960 Custom-Rod-O-Rama; Zebra Room, City Auditorium.
London, Ontario—May 2-7; Autorama '60; Manufacturer's Building, Queens Park.
Reading, Pa.—Apr. 23-24; Idlers Auto-Rama; Reading Fairgrounds; Idlers Club.
Hamden, Conn.—May 15; Custom Rods Auto Show; Custom Rods Club.

NHRA DRAG SCHEDULES

Phoenix, Ariz.—Opening to be announced. Deer Valley Dragway.
Colton, Calif.—Every Sun; Colton drag strip.
Holtsville, Calif.—2nd Sun. Imperial Valley Timing Assn.
Inyokern, Calif.—3rd Sun. Dust Devils Auto Club, Inc.
Madera, Calif.—2nd Sun. Madera Clutchers.
Palmdale, Calif.—4th Sun. Antelope Valley Timing Assn.
Redding, Calif.—Reopen Apr. 17; 3rd Sun. Shasta Roadsters.
San Luis Obispo, Calif.—3rd Sun. San Luis Obispo Co. Timing Assn.
Santa Maria, Calif.—1st Sun Dragoons, Inc.
Taft, Calif.—3rd Sun. Taft Dragsters, Inc.
Visalia, Calif.—4th Sun. Visalia Vapor Trailers.
Julesburg, Colo.—May 15-June 12-August 20-21-October 2. Platte Valley Timing Assn.
Davie, Fla.—2nd & 4th Sun. Broward Auto Club.
Miami, Fla.—1st & 3rd Sun. S. Florida Timing Assn.
Sebastian, Fla.—2nd & 4th Sun. Asphalt Angels Hot Rod Club.
Venice, Fla.—1st Sun. Vagabonds, Inc.
Opelousas, La.—Reopen April; 2nd Sun. Pel State Drag Strip.
Minneapolis, Minn.—Reopen Apr. 17, Ev. Sun. Twin Cities Optimist Club Timing Assn.
Henderson, Nev.—2nd & 4th Sun. Industrial City Timing Assn.
Hobbs, N.M.—1st Sun. Charioteers Auto Club.
Roswell, N.M.—3rd Sun. Dusters Auto Club, Walker AFB.
Vineland, N.J.—Reopen Apr. 24; May 1, 8, 22, 29; Vineland Speedway.
Tulsa, Okla.—Reopen Apr. 3; 1st & 3rd Sun. Tulsa Timing Assn.
Charlestown, R.I.—Apr. 3; May 1; June 5; S. New England Timing Assn.
Columbia, S.C.—Reopened Mar. 1; Palmetto Raceway, Inc.
Bremerton, Wash.—Apr. 10-24; Kitsap County Airport-King Youth Council.
Mt. Vernon, Wash.—Apr. 17; May 1-15; Bayview Timing Assn.
Caddo Mills, Texas—Reopen Mar. 1; N. Texas Timing Assn.

Dart KART BY RUPP

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ENGINEER YOUR OWN WINNER

From the popular Class A Kart above to the Super K Series "live" axle bombshell below, Dart-Kart offers you over 30 different models in a complete price range. With Dart-Kart's full choice of power plants, racing enthusiasts in all classes can literally get a hot competitive Kart built to their own specifications . . . on Dart-Kart's extra-rugged, precision-built racing frame.* *Patented

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GAGS! GIGGLES! GASSERS! in

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Here's a book that's strictly for laughs—packed with humorous stories and cartoons about automobiles. It's the joint product of Carl Kohler and Pete Millar, two zany young humorists who are equally at home at the typewriter or drawing board.

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Deals with speed tuning of all Ford cars: V8, 6 cyl. A and B models. Also tells how to speed tune Mercury and Lincoln cars. Answers every speed and tune-up question.

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New, fascinating book stock full of illustrations, technical information, and advertising service tips and stories of Henry Ford's Ribbon Model "A" Fords and "must" for Model "A" fanciers.

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Brand new how-to-do-it book by VW authority-engineer G. R. Morgan. Gives full useful and easy information to make your VW perform better than ever. Contains a thousand things every VW owner should know. Full of photos, drawings and sketches.

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Each with every phase of hot rodding, from sporting and relieving an engine to forming a hot rod club and building a drag strip. All information presented has been true experts and authorities in this field. Has over 100 illustrations and photos in its 144 pages.

No. 487 Each **$2.50** POSTPAID

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Contains complete repair and maintenance information on the Model "T" Ford. Collectors and antique car lovers will like to add this to their collection.

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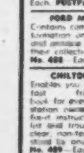
Enables you to fix any car — and save a ton of money — from 1949 to 1959! Indispensable book for every car owner, mechanic, or service station owner. Over 1,000 pages of time-saving, labor-saving instructions. 3,000 photos, handy check list avoid trouble-shooting charts. Described in clear, non-technical language. Can be understood by anyone.

No. 489 Each **$7.95** POSTPAID

EXHAUST CUTOUTS For All Cars & Trucks



With Cutout Closed

With Cutout Open

Fits 40 Exhaust Pipes to 2½" Diameter. Pressure operated, and easy to be controlled from dash. Gives you split exhaust when open and with OPEN EXHAUST system for road and country driving. Gives you:

- INCREASED HORSEPOWER
- INCREASED GAS MILEAGE
- FASTER ACCELERATION
- IMPROVED PERFORMANCE
- HIGHER TOP SPEEDS
- REDUCED ENGINE HEAT

Closed quiet exhaust for city and restricted areas.

Cutout has attached relief for use with flexible tubing or exhaust pipe, where auxiliary pipe is desired. Cutout is of heavy gauge steel all welded construction and is completely inside the exhaust pipe. Completely mechanical no springs to break or fail. Has three easy working parts and assures tight leakproof seal when closed. Knobbed handle for easy operation. Has no restricted flow through outlet. Can also be used to separate two different tuned mufflers. Exhaust cutout is complete with mounting nuts, insulating asbestos, and dash control.

No. 46 For All Exhaust Pipes through 2 diameter. Each **$2.89**

No. 218 For All Exhaust Pipes 2¼" thru 2½" diam. } POSTPAID EACH

"Stop Car Thieves" with this Auto Burglar Alarm

Let this proven police-type protect your car 24 hours a day—automatic — blows horn intermittently if car is molested. Switches itself automatically. Easy to install.

Here is the only all-out protection against accessory, tire, gasoline and auto thieves. Alarm installs under car hood and instantaneously blasts car horn intermittently the moment anyone touches any part of the car—and continues to blow it for approximately 15 seconds, after car is left unmolested! Installs all parts that attaches to dash upon removing ignition key. Easy to follow instructions. Complete instructions for simple quick installation.

No. 17— FREIGHT— Each **$2.50**

The Light Detroit Forget! Gear Shift Selector LIGHT For 1959 Chevrolet

- Illuminates the selector lever dial.
- Glamorizes and adds to the beauty of the car.
- Can be installed in minutes—no holes to drill—only two screws to remove and replace!
- A simple answer to one of the most annoying and irritating problems on the 1959 Chevrolet.

No. 307 Each **$2.00**

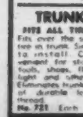
VOODOO HEAD Gearshift KNOBS

Cast metal with gleaming hammered finish. Eyes sparkle like ruby jewels. Lifetime construction. Easily installed on any gear-shift lever. Complete with 2 plastic bushings.

A. No. 398 Each Postpaid **$2.00**

B. No. 380 Each Postpaid **$2.00**

TRUNK TOOL HOLDER



FITS ALL TIRES!

Fits over the spare tire on trunk. Simple to install. Convenient for storing tools, flashlight and other car needs. Eliminates trunk rattle. Made of durable leatherette, sewed with nylon thread.

No. 721 Each POSTPAID **$1.98**

FUZZY MIRROR MUFFS

NEWEST COUNTERSWIDE RAGE

Fits around inside rear view mirror, and trims it with soft, fuzzy white fur.

Here's the latest fad in the nation—throwing up your inside rear view mirror with a soft, fluffy mirror muff. They're new, they're DIFFERENT, they're SENSATIONAL—stylish to add a distinctive touch to the interior of your car.

Mirror muffs are made of soft, fluffy angora-type white fur. One size fits nearly all inside mirrors, and you can't tell them from the hand of genuine angora used. Every driver desires to be the first in your crowd to have a new, different mirror muff on your car.

No. 442 Each Postpaid **$1.00**

DRESS UP TWO TONE — Flexible Plastic WIRE TRIM

For Ignition Wires — Spark Plug, Coil Cables

A most attractive effect for those that protects ignition wires, coil, spark plug and control cables, etc., from liquids, fraying or cracking. Keeps them cool and strong. Resists rust and heat. Insulates cables, including breathing cords, furniture, toys, bicycles, etc. 25-ft. package. Specify color when ordering.

Color	Stk.No.	
BLUE with White Stripe	2046	40 Mm.
GREEN with White Stripe	2049	Each
RED with White Stripe	2984	**$1.98**
BLACK with White Stripe	2048	

Smart plastic sheen, in a complete line of colors with stripes dropped effect that dresses up all types of ignition cables. Has thousands of practical uses, including breathing cords, furniture, toys, bicycles, etc. 25-ft. package. Specify color when ordering.

Color	Stk.No.	
BLUE with White Stripe	2046	40 Mm.
GREEN with White Stripe	2049	Each
RED with White Stripe	2984	**$1.98**
BLACK with White Stripe	2048	

PIN STRIPING

The Newest and Latest Custom Design Choice of White, Gold, Black, or Red

Ready made original design striping, easily applied in minutes. Can be applied on any finish, dry surface. Will not chip, peel or fade. Kit contains fifteen decals in nine different designs cut to fit 15".

Will stand on entire car; fenders, trunk lid, hood, sides and cowl panels. Specify color when ordering: White, Gold, Black, Red.

No. 230—POSTPAID. Per Kit **$1.00**

MINI Super CHARGER

20% More Gas Mileage! 800CC HORSEPOWER. Increases Air-Fuel Mixture Efficiency. Greatly Improves Motor Performance.

MiniSupercharger consists of a revolving impeller "blower" and automatic spring-loaded valve which opens an increased volume of air to the fuel charge with the throttle. The improved mixture enters the cylinders in a more powerful explosion. Results in more economical, near-rich mixtures & fuel saving. Better cleaner combustion, reduced "pinging" and detonation, less valve, ignition and engine life. Eliminates "vapor lock". Easily installed. Satisfaction guaranteed.

Specify year, make, model of car or truck and number of cylinders of carburetor.

No. 311—Single throat Carb. Postpaid **$ 9.95**
No. 312—Double throat Carb. Postpaid **11.95**
No. 313—Four throat Carb.—Postpaid **18.95**

CONVERTIBLE RAINCOAT

Quick, Slip-On Protection in Any Kind Of Weather For Convertibles

Attractive Plastic cover protects top or interior from dirt, rain, snow, bird droppings and other elements. Saves all wear and tear on expensive fabric tops. Quick, easy, mess maintenance protection with one-minute installation. Built to last, with extra heavy 4-ply fabric top. Fits all standard sedan convertibles. Can be used when top is up or down. Has handle on it to cover for play pens, small tents, furniture, baby carriages and many other items. Furthermore it packs fully for storage.

No. 574 —Each **$5.95**

NEW SHOCK OVERLOAD SPRINGS

Installs Over Present Good Shock Absorbers.
Shock springs carry heavier overloads with a ride—no bottoming.

UP TO 2500 LBS. ADDITIONAL LOAD CARRYING CAPACITY.

Easy to install—means can install in minutes. No special tools required. Slips right over present shock absorbers. No more sag and drop. No car bottoming. Fits almost all sedans & models. Increase road clearance.

Fits most shock absorbers. Specify make, year and model of car when ordering.

No. 532 — Per Pair **$6.95**

HI-SPEED ELECTRIC SIREN

Developed especially for the U. S. Navy & Coast Guard. Now used by hundreds of Fire & police departments, buses, ambulances, etc. Complete with bracket, louvers, 10 ft. of wire, & push button. Green Enamel.

No. 93—6 Volt Each **$13.39** POSTPAID
No. 95—12 Volt Each **$16.49** POSTPAID

"WIND-UP" SPORTS CAR KEY

Here is a laugh-getting gadget everyone will enjoy. Oversize (1¾" wide x 2¾" high) wind-up-type key can be attached anywhere—on the back of your small fanny or it starts car, on the door of your bathroom, on the trunk deck of any car, etc. It will create comment and bring a smile wherever it is seen. Made of high impact plastic with heavy duty rubber suction cup. Will stick tightly on any clean surface in just wetting suction pad before using.

No. 692 Each... Postpaid **$1.49**

Spun Aluminum SNAP-ON RACING WHEEL DISCS

NOTE: The SNAP-ON Hubcap hold disc is in best demand. Best for easy installing and removing.

Designed for beauty—engineered for speed. These new spun aluminum racing wheel discs add real new interest to any car. Engineered with gaskets curved surfaces to reduce wind resistance. Easily installed—no modifications or projections. Their sleek, graceful lines, magnificent aluminum finish will enhance the appearance of any car. Snap on securely to wheel—won't shake or fall off—will not affect wheel balance. Easily installed on any 14", 15" or 16" wheels. Sold per each or in sets of 4 wheels. 14", 15" or 16"

No. 337 Each **$9.95**
No. 376 Each **$2.75**
Set of 4

Change Any Black Tire to Rubber WHITE SIDEWALLS

FITS ALL TIRES Old ALL CARS.

Not painted on, not cemented on, but a Permanent White Rubber Ring molded to that fits between bead of tire and wheel rim. Thus, white wall and tires put under all weather conditions. Has the appearance of regular whitewall tires. Can be removed and re-used on different tires. Fits all cars—tube or tubeless. Sold in sets of 4.

No. 702—For 15"
No. 703—For 14" } POSTPAID **$4.95**
No. 176—For 14" Per Set
No. 707—For 13"

PAY LESS THAN EVER for a Star Fire

CAP SPINNER

Beautifies the Car the Easy Way. Dresses up the hub cap. Gives your car that custom look. Heavy-duty plated on stamped steel. Easily attached — no special tools needed. Can be used on all hub caps.

No. 852—Each... Postpaid **$1.79**

CAST IRON

EXHAUST CUT-OUT

For All Cars with Exhaust Pipes 1½" to 2½"

Exhaust tone is controlled from the dash. Can be used as a cut-out in the country and closed in restricted areas. Can also be used to operate two different tuned mufflers. Sturdy cast iron construction. Easily installed.

No. 813. Each **$3.75**

Cattle Caller Horn

Hear Like A COW! BELLOWS LIKE A BULL!

A new sound sensation for the farm. Control mounted on steering column operates variation of horn. Gives you a cow to a full bellow of a bull. Ideal for use by cattle owners and those who want a different sounding horn. Easily installed with standard switch. For either 6 volt or 12 volt systems.

No. 638—6 Volt Each... **$14.85**
No. 639—12 Volt Each... **$15.45**

"Hollywood" Wolf Whistle

Intake manifold whistle gives the wolf call, imitates a honking dog and other effects. Simple to install works off the intake manifold.

No. 61—POSTPAID. Each **$2.95**

TRANSMISSION CONVERSION KITS

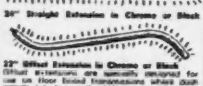
Converts Steering Post Shift Transmission to Floor Board Shift

- Use same "H" shift pattern as standard floor board shift.
- Designed for fast shifting.
- Eliminates lost motion at steering column shift.
- Easy to install—with just a few hand tools. This kit permits conversion of the rugged heavy duty steering post shift transmission to the preferred floor board shift. You get the same results out of your converted transmission (has same heavy gears) as the original standard floor board transmission. Also used for engine or transmission swaps where there is no space for regular shift linkage. Kits are designed and built to take it. Complete with all necessary parts, including 4" stickshift and instructions for installing.

Year	Make	Stk.No.	Price
38-40	Cadillac, LaSalle	233A	$39.95
49-54	Chevrolet Std. & OD	234A	39.95
55-60	Chev. Std.&OD (exc. Imp.)	236B	39.95
58-59	Edsel w/332 Eng. or over using TB9 Warner Trans. with Side Plate	236C	39.95
40-48	Ford	236D	39.95
49-60	Ford Std. & OD (Specify Top or Side Plate)	234E	39.95
47-54	Kaiser with T89 Warner Trans. w/side plate	234F	39.95
49-50	Lincoln with T89 Warner Trans. w/side plate	234F	39.95
49-ES1	Mercury Std. & OD	234G	39.95
LS1-54	Mercury Std. & OD	236H	39.95
54-60	Mercury Std. & OD (exc. trans. w/side plate	234I	39.95
57-60	Mercury Std. & OD trans. w/top plate	236J	39.95
49-50	Oldsmobile	232A	39.95
58-60	Pontiac (exc. Inter. trans. & Borg Warner trans.)	234K	39.95

GEAR SHIFT EXTENSIONS

36" Straight Extension in Chrome or Black



22" Offset Extension in Chrome or Black

Offset extensions are specially designed for use on floor boxed transmissions where dash shift interfere with shifting. All 22" long straight with offset at bottom to avoid console can be easily shaped over cut off gear shift lever. 5/16" U.S.S. coarse thread. Made of straight extensions of brilliantly chrome plated or black finished 1" O.D. steel tubing have 5/16" U.S.S. coarse thread for attachment. Extensions can be easily cut to desired length.

Offset Extension, 22" Long
No. 926—Black finish. Each... $3.50
No. 928—Chrome finish Each. 3.95
No. 2324—Black finish. Each... $2.50
No. 2325—Chrome finish Each. 2.98

1⅜" & 1⅞" SOLID ROUND GEAR SHIFT BALLS

- Oversize gear shift ball fits the palm for easy shifting.
- Beautifully polished solid aluminum.
- Heavy duty construction with heavy steel lever from vibrating.
- Shifter lever assembly ready to install. Specify size, type and thread. 1⅜"

5/16" USS (Coarse) Thread No. 975 Each
5/16" SAE (Fine) Thread No. 978 Each **$1.50**
3/8" USS (Coarse) Thread No. 976
3/8" SAE (Fine) Thread No. 979

1⅞"

5/16" USS (Coarse) Thread No. 2304
5/16" SAE (Fine) Thread No. 2305 Each
3/8" USS (Coarse) Thread No. 2306 **$2.50**
3/8" SAE (Fine) Thread No. 2307

Chrome Gear Shift DUST COVERS

Dash away with the plain, drab looking dust cover. Adds a sparkling finishing touch to the floor board. Transmission 3½" diameter, 1 5/16" high. Consists of chrome plated heavy cloth dust cover and plain steel inner friction plate.

No. 98 Each... $1.39

AH-OOO-GAH Chromed HORN

Here it is for the sport car enthusiast. Not a vibrator or other substitute but a genuine motor driven horn.

Chrome Plated Bell with Black Wrinkle Painted Base and Mounting Brackets 6 or 12 VOLT **$12.60**

No. 60—POSTPAID.

All Chrome Plated Bell and Housing. Weatherproof for Mounting Under Hood 6 or 12 VOLT **$15.00**

No. 63—POSTPAID.

For all makes of cars.

WHEN YOU WANT PLENTY OF NOISE—INSTALL A HOLLYWOOD NOISE MAKER MUFFLER

- Shell length only 11 inches long.
- Overall length 16" Diameter 5".
- All Steel Construction with electrically welded seams.
- Universal caps with bushings make this muffler adjustable to any size tailpipe.
- Complete with clamps and bolts.

No. 241 Each **$3.98**

THE MUFFLER WITH THE LOUDEST B-O-A-R!

- Straight-thru construction with perforated inner core. No Packing—No Baffles.

'59 CADDY TYPE "BULLET" TAIL & STOP LIGHT FOR ALL CARS

Universal Mounting — Fits On Any Flat Surface — Easily Installed Ideal for Customizing — Restyling — For Adding Extra Tail Lights

Exploded View

Brand-new bullet shaped tail lights — styled just like the 1959 Cadillac tail light, but with universal mounting to fit any flat surface. Can be used as extra tail stop lights, or mounted on top of present tail lights or in place of them. Easy to install — only 3 holes to drill. Tail lights are complete ready to install. Include red bullet lens, with inner diffusion lens, chrome finished bezel, lens assembly with shadow contact built, mounting studs and nuts. Light is 6¼" long overall. 3-3/16" diameter

No. 498 6 Volt, Per Pair
No. 499 2 Volt, Per Pair } $12.95

CONTINENTAL KITS for 1960 Corvair, Falcon

Beautiful high quality, yet low cost continental kits—designed to blend in and complement the contours of these "compact" cars. Give the 1960 Corvair or Falcon a genuine sports car look. Takes the spare tire out of the trunk, increasing trunk carrying capacity. Kits are complete with strap to mount brackets. Custom designed to fit the car, plus tight hold tire carrier, bumper bracket extensions, splash pans, license tire cover and easy to follow installation instructions. All metal parts are prime finished.

No. 434 —For 1960 Corvair. $49.95
All Models. Per Kit
No. 435 —For 1960 Falcon. $49.95
All Models. Per Kit

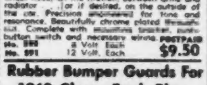
ELECTRIC "Ding-Dong" BERMUDA BELL

- The two-tone chimes with the sound from Bermuda.
- Just a touch of the finger gives that well-known "Ding-Dong" sound.
- Easily installed—fits all cars.

Now — an electrically operated Bermuda Bell that gives the same "Ding-Dong" sound as heard on the romantic island of Bermuda. Mounted on front of dash, under-dash-mounted push-button bell can be mounted under hood, firewall, bulkhead, grille or radiator — or if desired, on the outside of the car. Precision engineered for tone and resonance. Beautifully chrome plated and polished. Complete with mounting bracket, push-button switch and necessary wiring. Postpaid

No. 598 6 Volt Each **$9.50**
No. 599 12 Volt Each

Rubber Bumper Guards For 1960 Chev., Ford, Plym.

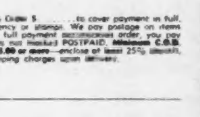


Front Rear

Protects new, expensive bumpers from scratches and dents. Prevents metal-to-metal contact when parking, when coming to rubber stop. Made of black moulded rubber with steel insert 8" long, 1⅝" wide. Easily installed with only 2 mounting bolts. Can be used on either front or rear bumpers.

No. 412 —Per Pair **$3.95**

AUTOMATIC TRUNK LIGHT



Completely automatic operation. Controlled with Mercury Switch. Simple installation. Lights when trunk lid is opened. Fits any car—all necessary wire included. Can be purchased separately.

6-12 Volts

No. 141—POSTPAID. Each **$1.59**

CUSTOM FIT Fender Well Fender Skirts for 59-60 CARS

FLARED BOTTOM

Smart new styles that add greater beauty to the car you own. Full length solid mount for with fender just like original equipment.

Built that ultra-custom look. Complete with protective lacking levers—no cutting or fold off. Made of heavy gauge steel with protective coating to paint to match your car color. Can be installed in minutes. When ordering, be sure to specify Make, Year, Model and whether 2-door or 4-door.

No. 316— Per Pair **$12.95**

Stainless Steel Grilles for 1960 CORVAIR

BEFORE AFTER

Easily installed—no alterations to front end. Custom tailored grilles that replace the plain front end of the new Corvair. Gives it a distinctive sporty look. Adds beauty to the car's overall appearance. Grille is made of half-round stainless steel tubes and is made of molded. Bolts to front panel—no cutting or welding necessary. Designed to fit the new Corvair perfectly. Completely pre-drilled for installation.

No. 436 Per Kit **$14.95**

MANUAL CHOKE Conversion Kit

FOR ALL CARS WITH AUTOMATIC CHOKE

Converts Automatic Choke to Manual Control.

Eliminates hard starting — stalling — flooding and poor gas mileage due to that troublesome automatic choke.

New spring loaded—engineered for economical positive manual choke control with trouble free operation — eliminates stalling and maintains proper vacuum while operating engine.

No. 88— Each **$3.95**

HOT SPARK INTENSIFIER

For all cars. Pops up all ignition systems—results in faster starting, smoother idling and better gas mileage — increases valve motor performance. Attaches easily to your present coil without special tools. Also improves high speed performance and stops plug fouling.

No. 519— POSTPAID. Each **$1.98**

MANUAL TRUNK KIT

Streamlines rear deck lid. Remove present handle, underside, and from inside of car. Complete with instructions and all parts.

No. 294—fits Ford 36-59 thru 59 Ranch Wagon, 58 sec '49 Olds 98, 54-59 Chevy, Dynamic Deluxe, 53-59 Plymouth

No. 295—fits all Chevrolet, Ford, Mercury, Olds 88, 54-59 Buick Special, Super, Century, Roadmaster, Packard, Studebaker

State Year, Make and Model. **$1.49** POSTPAID. Per Kit

Chrome Door Lock Knobs

TRIPLE CHROME PLATED

Changes standard door lock knobs to all chrome. Gives luxurious interior of car and brightens inside of door.

Specify Car & Year.

No. 515 POSTPAID. Per Kit **2-FOR $1.00**

USE THIS HANDY ORDER FORM — MAIL TODAY!

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I enclose Check or Money Order $ ..... to cover payment in full. Please do not send currency or stamps. We pay postage on items when POSTPAID when full payment accompanies order. We pay shipping charges on items not marked POSTPAID. Minimum C.O.D. order accepted must be $5.00 or more—enclose at least 25% deposit, pay balance plus all shipping charges upon delivery.

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Address .....

City ..... Zone ..... State .....

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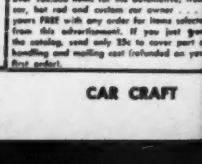

NEW LOW PRICES

THOUSANDS OF NEW ITEMS

1960 EDITION JUST OUT!

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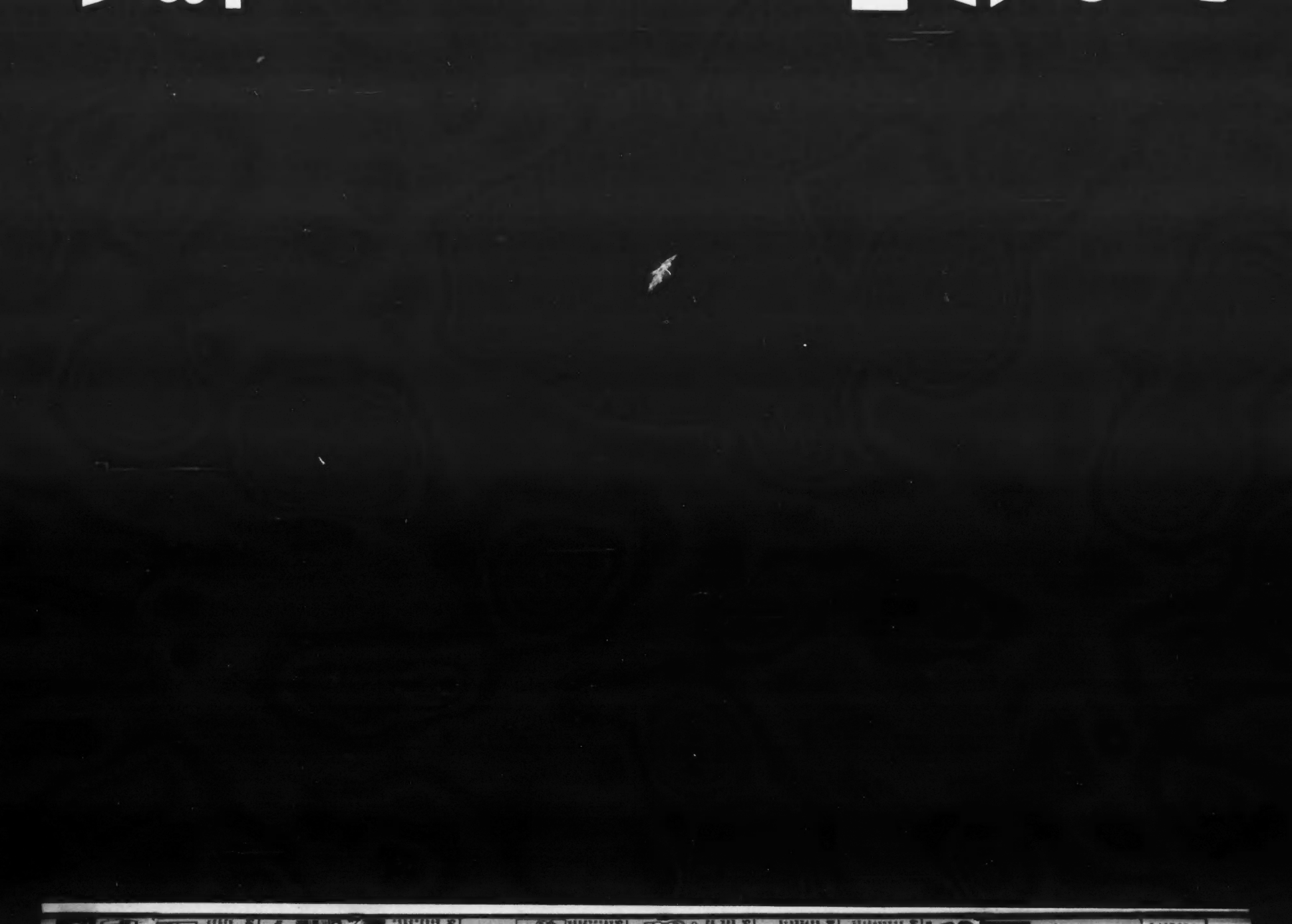

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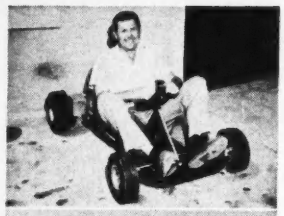

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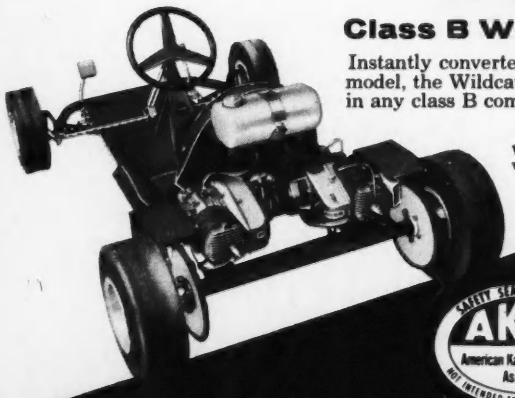

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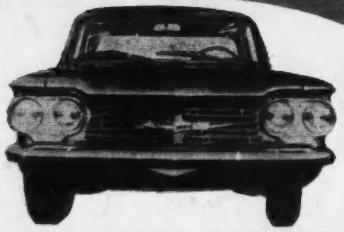

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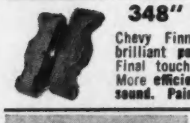

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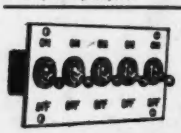

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